



Computer Weekly

Thursday, September 15, 1983

PT7 cuts costs

Computer Systems

Edwardes appeals for Mercury backing

SIR Michael Edwardes took a fighting stance this week in promising that Mercury would succeed in providing an alternative to British Telecom.

He told international telecommunications managers at their annual conference in Brighton that they had lived in a "stable" environment for too long. He called on them to "stop sitting on your hands in a wait-and-see attitude."

Leader Comment - page 19

Mercury needs your backing, and fast.

Edwardes, who is chairman of Mercury Communications, promised that Mercury is here to stay. The alternative service, set up by BP, Cable and Wireless, and Barclays Merchant Bank, would not be deterred from its course by external pressure, he said.

Referring to action by BT unions to prevent interconnection of Mercury to BT networks, he said the events may give Mercury a "following wind. The dog barks but the caravan moves on."

Delegates to the Telecommunications Managers Association Conference received Edwardes' remarks enthusiastically. But there remains a strong reluctance by companies to take the risk of placing orders for Mercury services. The fear of local action by union members over servicing of equipment remains. As a result Mercury has been offering some "very good deals", as one delegate remarked, to get itself off the ground.

Edwardes told the delegates that "if you want a vigorous competitor to BT, your first priority is to order a two-megabit link from Mercury now". He said the controversy over interconnection



EDWARDES... "Stop sitting on your hands."

versus privatisation had become confused in many people's minds. Interconnection was "no more than sense".

He added that it made sense for BT in terms of revenue, and was not a threat to jobs.

Mercury's own manpower would be "well into the thousands by the end of 1980".

Edwardes refuted claims that Mercury is opposing resale, although he looks to the government to maintain the basis on which

Thomson and CGE agree to share-out

by Jack Gee
FRANCE'S leading electronics and information technology groups Thomson-Brandt and Compagnie Generale d'Electricite, which between them employ 320,000 workers, are seen to submit to the government a rationalisation plan to share out their activities.

CGE, the only profit-making industrial group in the public sector, is likely to take over Thomson's production of telecommunications equipment, office automation, wires and cables.

Thomson, which was nationalised with CGE 18 months ago, is expected to concentrate on TV, video, household electronics, military equipment, and electronics and computer components.

CGE is simultaneously negotiating with Olivetti to obtain a 35% stake in the Italian firm, with the aim of jointly developing an office automation industry which, with the exception of Olivetti's Logopak subsidiary, does not yet exist in France.

The agreement between Thomson and CGE is now in its final drafting stage before being submitted to the government for approval. Industry minister Laurent Fabius is understood to be in favour of a division of work by the two firms, to cut out wasteful development and marketing of similar equipment with State subsidies.

But Telecommunications Minister Louis Mexandeau opposes the

concentration of manufacturing telephone switching equipment in the sole hands of CGE, which the choice of French Telecom foreign buyers to a single firm.

President Mitterrand will find a solution. He is likely to favour the share-out between Thomson and CGE, to sort out their activities and rationalise the efforts.

CGE's managing director, Georges Pelletier, emerged as a leader of a struggle for French industry against unemployment. He was appointed by Mitterrand last year. Pelletier is a member of the Socialist Party.

Pelletier seems likely to win support by obtaining a role in France's power station building programme, to bring to the government's attention the need for a new industrial revolution which must not make the ordinary worker suffer.

Mauroy's words were echoed by Amadou M'bow, director general of Unesco, who said the computer revolution was an event which affected the whole planet. The computer should not, he said, be on the outskirts of industry and science - "individual conscience is needed to prevent the risk of the

Stern calls for super effort in Europe

A MAJOR European effort to build a supercomputer was called for by Jacques Stern, chairman of Machines Bull, on the opening day of the ninth World Computer Congress in Paris this week.

Stern said the supercomputer was the driving force for all technological advance. What was needed, he said, was the political will to mobilise all Europe's forces to undertake a supercomputer project.

Europe already had the ability and the technology, he said. Europe would lose its autonomy if it lost control over data processing, Stern warned. And that, he said, would directly affect the fate of our children.

One European market, based on freely negotiated standards, is essential, Stern said. He pointed to the recent agreement by ICL, Siemens and Bull to form a joint research centre as an example of the way forward. "Our fate is intertwined," he commented.

Date processing as a tool of power was a common theme in the opening addresses at the conference. And revolution was one word used by all the speakers.

Pierre Mauroy, French prime minister, talked in the opening speech of a new and universal industrial revolution which he said must not make the ordinary worker suffer.

Mauroy's words were echoed by Amadou M'bow, director general of Unesco, who said the computer revolution was an event which affected the whole planet. The computer should not, he said, be on the outskirts of industry and science - "individual conscience is needed to prevent the risk of the



MAUROY... Spoke of industrial revolution.

world being broken down into computerised and non-computerised societies."

Bringing 1984 to mind, he spoke of the manipulation of minds, control of movement and threats to individuals' freedom as the dangers which must be avoided.

M'bow announced at the congress a new Unesco initiative to be taken in co-operation with the International Bureau for Informatics for an international computer science programme to develop computer applications and co-operation among nations.

Stern also spoke of a revolution, saying the unprecedented effects on life could only be compared to those of the printing press.

He warned of new and deep imbalances if computer power was not made available to all. Comput-

ing, he said, was a great object of power - and Europe was lagging behind.

Stern warned that we may miss the revolution by concentrating on "marginal" things - for instance microcomputers. What was important, he said, was the digitalising of data for all operations - the whole flow of information within companies, from voice to text images and graphs. Central to this was the integration of telecommunications and data processing.

Raising further spectres, Stern said that in software, "we remain at the stage of pre-history," which threatened to paralyse and strangle data processing. Software techniques, he said, were developed when hardware was expensive, whereas the only rare and costly resource was man.

The software revolution may be

Survey reveals software surprise

by George Black
ALMOST half of the UK expenditure on external software and services is spent by end-user departments and companies without a computer of their own, and is not under the control of centralised data processing departments.

That is one of the surprising conclusions to be drawn from a major new Computer Weekly survey which is being undertaken by the International Data Corporation (IDC).

The conference, Plan IT 84, will be sponsored by Computer Weekly and IDC, in association with IDC. Full details on page 2.

Control over expenditure on software products and services is passing away from the central data processing department - 44% is not under their control - partly because smaller firms do not have DP departments and others use bureaux; but it is also because of the growing strength of end-users, who are now going their own way.

The software revolution may be further off than some pundits have been arguing - hardware will still be more expensive up to the year 2000 - but software packages are already selling machines instead of vice versa.

The trend away from custom-written programs towards the packaged solution is so marked that, by 1990, 10 times as much will

A major new planning conference for the information technology community will be held on February 7-8 next year. It will be the culmination of a professional market research effort by International Data Corp (IDC) and the National Computing Centre (NCC). The conference, Plan IT 84, will be sponsored by Computer Weekly and IDC, in association with IDC. Full details on page 2.

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STC makes 390 redundant

STANDARD Telephone & Cables is to make 390 redundant, just six months after promising its workforce jobs for the foreseeable future. And another 300 job losses were announced by GEC Telecommunications at its Coventry plant, where 550 jobs were lost last year. Both companies blame increased competition due to the government's liberalisation policy and technological changes. Some STC staff will be re-employed but no figure has been given.

A4 outlet

A JAPANESE-built A4-sized portable computer launched last month by US firm Tandy is to get a second outlet in the West, through Olivetti. The £500 machine, built by a purely manufacturing firm, Kyocera, is being launched by the Italian company as the M10, the bottom model in its M business microcomputer range.

New NEC chips

NEC HAS announced details of a new series of general purpose microprocessors at this week's IFIP conference in Paris. The V-60, with a 16-bit data bus, will have one Mips performance and the 32-bit V-70 will run at two Mips. Both have a four gigabyte virtual address space and are built in CMOS. The chips will be available by 1985.

IBM firsts

IBM HAS stepped outside the US to buy independent software for the first time. The company is to distribute Micro Focus Personal Cobol, Comshare's Delta database and Caxxon's Cardbox and TKI in the UK under the same terms as its own software. It will also distribute US based Visicorp's packages throughout Europe.

Continued on back page



SHONE... "Sales and income have risen dramatically."

Altergo is marching on

ALTERGO Products, the US outpost of the old Altergo empire, is going from strength to strength now that it is marching under the banner of Software Sciences.

Last April Software Sciences, a subsidiary of the Thorn-EMI electronics and entertainment conglomerate, acquired Altergo Products. This was part of the Altergo Software company, which crashed in April due to liquidity problems.

Software Sciences decided to beef up the Altergo Products set-up, and in July sent ex-Syntex man David Packwood to the Boston office, to expand Altergo Products' US operations.

Software Sciences chief Mike Shone said: "I am very pleased at

the way things are going at Altergo. Sales and income have risen dramatically."

"Revenue for the June, July and August period of 1982 was \$62,000. For the same period this year it is up to \$300,000. We hope to reach at least \$1.7 million this year, but it might well go \$2 million."

Packwood's mission was to sell the old Altergo FQS (Friendly Query System), as well as to oversee a general expansion of Altergo Products' operations.

According to Shone he has done admirably. "FQS is selling very well. David and his team have sold packages to a whole string of US companies, including Chase Manhattan Bank, Florida Coast Bank,

and the Prudential Assurance Company."

FQS enables IBM users to access, via CICS, five data held on DL/I and IMS databases.

"There are now 10 staff at Altergo Products' Boston office, and a new Chicago branch has just been opened six weeks ahead of schedule. This is headed by former Computer Science Corporation man John Churchman. Further offices will open shortly in New York and Dallas."

Apart from the income generated by the sales of FQS software, Altergo Products still enjoys revenues from licence fees on the Shadow system. This is an Altergo software package which complements the CICS system.

Under the scheme and they introduced the software house to the user.

John Stanley, managing director of Business 29 firm Systemolve, said membership of the scheme did not cut his independence. "As a consultancy we offer the user the best fit to meet the need," he said. "If ICI invites us to meet a user and we are already bidding there with other equipment, we tell ICI. And if we decline the need and feel the ICI product is not appropriate, we again tell ICI. If we didn't, we'd be dead."

He added that dealing with third party companies had been a "very difficult" experience. But the scheme had been a success. "We have a very good relationship with ICI. Our products are available from other sources, but we have a very good relationship with ICI."

Peter McGuffie, at McGuffie Brunton, one of the Partnership 25 firms, said he was "cautiously optimistic" about the impact of the

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BT shares will go on US market

by George Black and Nuala Moran

THE government will try to sell some of the shares in British Telecom on the US stock market after an unsuccessful attempt to interest the Japanese in the venture.

It is worried that the floating of 51% of the organisation in autumn 1984 could prove too much for British investors to absorb.

Detailed plans for the disposal of the majority holding in BT are materialising just as its biggest

union, the Post Office Engineering Union (POEU), has decided to pursue its campaign of action against privatisation.

Ministers are keen to make one offering for the 51% but that would mean it would have to raise around £4 billion at once, which could well prove a strain on the resources of UK investors.

So it sent a Trade and Industry delegation to Tokyo in the summer to look at the chances of attracting cash from there. But the Japanese government, anxious to foster its

own telecommunications industry, appeared unresponsive.

Now US business is being asked to help out instead, although taking less than 10% of BT. Whether it is likely to be any more enthusiastic than the Japanese is uncertain. But the arrangement is bound to further anger the unions, who will be quick to sound a patriotic note in the effort to keep BT in the public domain.

At a special conference at Wembley, POEU delegates voted by 80,824 to 48,713 for a "flexible

package" of industrial action. It will be aimed against major financial and business institutions and "any other bodies seeking to make financial gain" from the sale.

The union is already taking selective action against BP, Cable and Wireless and Barclay's Bank, owners of the private telecommunications network Mercury. Some union members in London have been refusing to do installation and maintenance work on telephone and data transmission equipment for these firms since August 15.

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ICL extends its software partnership

by John Kavanagh
ICL has extended its partnership with software houses to firms handling its System 25 business minicomputer, and the Partnership scheme could open international markets to them.

Six UK software firms are in Brussels with ICL this week to hear more about the company's plans and to meet 18 European software houses.

The launch of Partnership 25 comes six months after ICL started wooing big software firms with covering 29. Similar scheme covering the ME29 and 2900 mainframes.

deals with local software houses. The scheme has also led to end user sales leads coming through ICL to the software firms.

"The ICL salesforce is starting to understand the Business 29 scheme and we're delighted with it now," said Steve Valdez, a director of Data Sciences International. "There was some fear at the start that ICL would use the scheme to learn our secrets but in fact they've been giving us theirs. Recently they told us all about the DM-1, which won't be launched until next autumn. That was an act of faith by ICL in the software houses."

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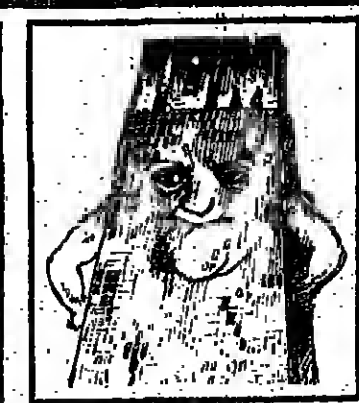
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France appeals to EEC partners

by Jack Gee
THE French government is trying to enlist support from its Common Market partners in throwing up new barriers, ranging from tariffs to quotas and technical devices, to protect its limping electronics and computer industries against competition from the US and Japan.

André Chanderagor, the French Minister for European Affairs, submitted this project to his European colleagues at a ministerial meeting of the 10 nations in Brussels earlier this month.

Chanderagor said the Common Market countries must encourage mergers across national boundaries between their high technology industrial groups and throw open tenders for public sector contracts to their European neighbours.

The French proposals are designed to give a European guide to a specifically French problem. France's vaunted electronics plan, the Filière Electronique, which was launched in 1982 with a five-year life span, now appears certain to fall far short of its key objectives. These include raising the country to the same rank as the Japanese and Americans in computers and electronics by the end of the decade.

In an effort to close its frontiers to Japanese videotape recorders, France channelled all imports of these products through an understaffed Customs post at landlocked Poitiers from last autumn to this spring.

The French lifted this barrier after obtaining a promise from the Japanese to limit imports to Common Market countries.

But the French themselves got a dressing down from the European Community for introducing discriminatory trading curbs.

The six-month French embargo also strangled its own video recorder industry in its infancy. After failing to acquire a controlling stake in Grundig, hopes are now pinned on a recent agreement

between state-owned Thomson Brandt and Japanese Victor. But the French consumer market for video recorders has shrunk almost out of existence during the shutdown on imports.

While state-controlled Bull, France's biggest computer maker depends heavily on Honeywell for mainframes which are imported from the US or built under licence, IBM France gets much less than the fair share of orders due to a firm which makes a profit and provides jobs for over 22,000.

The French microcomputer industry is virtually non-existent. The biggest manufacturer, Goupil, is dependent on government orders mainly for schools. It will sell at best only 10,000 of the 35,000 desk-top machines bought in France this year.

It seems unlikely that France's neighbours will be able, even if they wish, to help it make up the technical lag.

■ **Leader Comment** — page 15

Computer Weekly/NCC/IDC joint venture Conference will help plan the IT processing

A MAJOR planning conference for the information technology community is being launched in February, 1984. Sponsored by Computer Weekly and the National Computing Centre, in association with International Data Corp, the conference will be based on a major body of research.

Called PLANIT 84, the conference will be a valuable tool for information systems and services managers and general management who have a specific remit for computer services.

In contrast to many other conferences, PLANIT 84 will be based on a specific and tailored body of research.

The conference aims to provide an independent, research-based guide on the short-term planning implications of existing trends in information technology, and its effect on the information systems professional.

David Fairbairn, chairman of

NCC, said the conference would be of value to any company of such magnitude that it needed to plan its computer processing, and had an established data processing installation.

In the normal planning process, information is being picked up from multiple sources. PLANIT 84 will package a heavy research base, with recommendations for users, in one two-day conference.

The information centre in companies is undergoing dramatic change. So much is happening with technology that many companies have not properly set a policy to do their planning. The conference will present information in such a way that users can go away and implement the ideas.

It will be held February 7 at The Royal Lancaster Hotel in London.

Full details available from NCC Seminars, Oxford Road, Manchester M17ED. Tel. 061-228-6383.

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TERMINALS & PERIPHERALS

IBM goes back to basics

by John Kavanagh

IBM has produced a 512K memory chip — by going back to basics. The industry leader has used plate pushing, a technique normally used only in very simple circuits.

The dynamic random access memory was unveiled last week. It is still in the experimental stage and there are no plans yet to build it into existing products.

Plate pushing involves sending an additional electrical charge across a chip. This improves reliability because the data signal is stronger. At the same time IBM says more storage cells can be packed on the chip. The "unique" architecture demands less support circuitry and thus fewer electrical paths between that circuitry and the storage cells.

IBM says the result is that 64% of the chip is available for data storage. It says this is one-third more than on other chips.

The experimental device are three-eighths of an inch square — about three times bigger than 64K memories.

Retrieval time is 120 nanoseconds, although in some applications that can be halved. Data can be accessed one bit, two bits or four bits at a time.

Using bigger electrical charges implies more heat. But IBM said: "The experimental project was aimed at examining the use of plate pushing. We have not yet explored all aspects of the chip design. But early results show no increase in heat."

But unlike the MSX, which must have subsets of the options specially configured for each customer, Beeline can have them all on the system at once.

It is designed to accept input from most types of terminal or computer available and to connect them to the outside world via virtually every type of local or wide-area network or medium, including telex, tele, private and public packet networks and the telephone network.

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Bull reduces its deficit by half

by Jack Gee
BULL, France's state controlled computer manufacturer, expects to halve its 1982 losses of 1.3 billion francs (£105 million) this year following an encouraging performance for the first semester, chairman Jacques Stern said.

Stern reported that Bull, formerly called Cii-Honeywell Bull, has increased turnover by 28% compared with the first half of last year, deliveries by 30% and exports by 19%.

However, he warned: "The hardest part of the road is still ahead of us. But these results give us full confidence in our ability to get through the Alps ahead of us."

A major unsolved problem is the ability and willingness of the state, which holds 80% of Bull's equity (the remaining 20% remains with Minneapolis-based Honeywell) to pour more cash into the firm. In 1982 the French taxpayer contributed 1.5 billion francs (£120 million), barely enough to pay Bull's debt charges, and leaving little over for investment.

Although Bull aims at earning 50% of its turnover from office automation systems in 1986, the closing year of France's ambitious five year Electronics Plan, Stern has made no disclosures about how the firm will achieve this.

Within a few days Bull will surrender its 24% stake in Olivetti. In all, the French government holds through Bull and glassmaker Saint Gobain 33% of the Italian computer company's equity.

State-owned Compagnie Generale d'Electricite's subsidiary Cii-Alcatel is negotiating with Olivetti to consolidate the bulk of the French holding.

But Olivetti's chief executive, Carlo Benedetti, is keen to sell two-thirds of the French stake to AT&T.

This would leave Cii-Alcatel with only 10% of Olivetti and a minor role in a venture to which French Industry and Technology Minister Laurent Fabius attaches great importance, to develop and market a Franco-Italian electronic typewriter.

Bull is keeping a close eye on the progress of negotiations between Olivetti, CGE and AT&T because its own future in office automation will depend on their outcome.

The acquisition last year by Bull of CGE's office systems subsidiary Tmsac is a key element in the state computer maker's ambitions to capture a big slice of the office automation market and restore itself to financial health.

Stern said: "We do not want to leave Bull in a permanent state of dependence on the French taxpayer. We want to bring the firm back to robust and normal management."

by Donald Kennett
BRITAIN'S building societies have worked out how to have a shared network of automated teller machines (ATMs) - cash dispensers and transaction terminals) by the end of next year.

The Council of the Building Societies Association (BSA) last week accepted in principle a report from its ATM subcommittee on how the job should be done. BSA business and technical planner Brian Townsley said that a company was to be set up to own and run a switching centre through which the ATMs and computer centres belonging to member societies would be linked to each other.

Some societies - including the Halifax, Leicester, Peterborough and Cambridge - are planning to have their own networks operational before the end of this year.

Four US suppliers - Hitecronic Data Systems, Applied Communications, Anacom and ADP - were invited in June to tender systems for the switching centre.



BENEDETTI... Keen to sell.

Peachtree buys a branch

by George Black
PEACHTREE, the micro software subsidiary of the US giant MSA, is moving into the educational market with the acquisition last week of Edu-Ware Services of California.

Peachtree bought Edu-Ware through MSA for a mixture of stock and cash worth \$1.5 million, plus some payments expected from future profits.

Last year Peachtree bought a British software house called CSA Microsystems. It is only just over two years since Peachtree itself was

lifted from obscurity when MSA took it over for a stock and cash mixture of around \$5.5 million.

Its turnover, then about \$2.3 million a year, has since rocketed to \$9 million. And meanwhile its hungry parent MSA has gone on swallowing small but promising applications outfits.

Edu-Ware was set up in 1979 by Sherwin Steffin and Steven Pederson. Last fiscal year it netted \$1.6 million from products in both schools and games fields, running on well-known micro such as the Apple, Atari and IBM-PC.

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Societies plan to share

and by the time the switching centre is operational there should be at least 250 ATMs ready to be linked through it to building society computer centres.

The new company, which has yet to have its name accepted by Companies House, will have its first board meeting next Wednesday, when it will decide on how to charge the societies for its services and whether to adopt the detail of the recommendations in the report.

The report was prepared by a working group of the BSA council and a team of consultants from CAP, who started their study in March.

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Surgery plan isn't working, says fellow

by Caroline Burgess
THE government scheme to introduce microcomputers into doctors' surgeries is not working, according to Dr Norman Stoddart, ICI Computer Fellow to the Royal College of General Practitioners.

Stoddart claims the joint Department of Trade and Industry and Department of Health and Social Security scheme is being "hushed-up" by the DHSS and he can get very little information about it. Less than half of the half-price microcomputers on offer have been installed, said Stoddart.

The choice of computers was limited to two British makes. According to Stoddart, that meant that although they were half-price they cost as much as other models on the market. It also limited the choice of software to two packages.



STODDART... Wants more research.

He also foresaw another problem that at the end of the scheme, due to run for three years, the doctors would have to meet the cost of maintaining and updating the machines themselves.

But a spokesman for the DHSS said that the scheme was running well and that over 100 microcomputers had been installed. "It is too early to expect any feedback from the scheme," the DHSS

The new company is expected to pick EDS, one of the world's largest computer services companies whose strong point is that it will install systems and be responsible for facilities management on a fixed price contract for a period of several years.

EDS would have the system on the Hase24 software, recently chosen by the Trustee Savings Bank for its ATM network, which is supplied by Applied Communications and runs on Tandem computers.

An important factor in selecting the system was to preserve the greatest possible choice of ATM supplier for the building societies subscribing to the network. Applied Communications claims that its software supports all ATMs on the market, as well as home computers and videotex terminals.

COMPUTER Technology in the Ministry of Agriculture, Fisheries and Food a 300 Mbps drive, plus an intelligent network and seven VDUs in each CTL 8086 system.

PO timeshare
THE Post Office is to buy timesharing computers, 4341, in a deal struck with Computer Services (PCS) of the Post Office has until now been outside bureau services.

AIR seats by
AIRLINE charter operators Owners Abroad has agreed to 1600,000 reservations for a counting system based on the Elmer's 32-bit minis to cope with fast growing seat reservations.

aims to have all the microcomputers installed by early 1984.

The DHSS chose a number of GPs to receive the microcomputers.

Stoddart says there is no co-ordination for the long term for the introduction of computer technology. He wants "more research from academics, more money from the government and everyone to get together."

SALES BRILL £2m system for drug telesales

ICI has won a £2 million contract from the big UK drug firm Vestric to replace its control system. An ICI 20966 mainframe will replace ICI 2960 computers in the houses.

The system supports 300 ICI terminals in Vestric's 100 houses. There are 2,000 micro-based units at the end of the line. The Vestric branches to the centre in Liverpool.

More for Nixdorf
NIXDORF, West Germany's second biggest computer company, has increased its hold on the Irish Housing Association's Kirk Carr Housing Association which provides shelter for 20 people, has become the Irish Housing Association's Nixdorf computer by mid 1987. Model 35 for financial administration work.

First for Prime
PRIME has taken its first order for the new top supermini from ICL's Data Department. The machine will place one of four existing 750s for computer-aided design.

Arcad chosen
ANOTHER firm of consultants has moved into a new office with an Arcad graphics from Applied Resources (Cambridge, Birmingham) and the UK's leading overseas technology.

Unix at No. 1
UNIX software house Software has added to its worldwide government contract for its X11D word processing, an order from the Central Office of the G. Office.

DoTI aids role
BRITISH Olivetti will install a computer-aided manufacturing system for Fluid Power of Gloucester, a million contract. The project is supported by a Department of Trade and Industry grant under the Flexible Manufacturing Initiative.

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Telex that doubles as a micro

by John Kavanagh
UK COMMUNICATIONS giant Cable and Wireless has moved into the microcomputer market in an upside-down way: while other firms offer a telex interface option on their microcomputers the company's Cable and Wireless UK Services subsidiary has launched a telex message switching system which can double as a microcomputer.

The new MX110 handles standard message switching facilities such as editing and automatic dialling into the telex network - but it also runs the Digital Research CP/M operating system. This means firms buying the telex switch also have access to the 4,000 packages available under CP/M.

The MX110 is based on a Computer Automation minicomputer. "It's a switch first but it can also run atock control, payroll and so on," said product specialist Tom Buckley. "It will be interesting for smaller companies thinking of installing one or two micros or a small business mini."

Prices start at £6,760 for a system with four ports and a one-megabyte floppy disc.

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One microcomputer manufacturer said over 80% of his staff worked in office-like areas, even though they were production people.

Town planning rules cannot keep pace with the industry. The survey report says: "The electronics industry is often uncertain from one day to the next what is the major use of premises, because the definition of use is so fine and changes so fast. A new category of mixed use is needed - and the sooner the better."

Property developers apparently think of a high technology property as a warehouse with a garish stripe on the roller shutter door and a few brightly coloured panels. Little attention is paid to the need for top-quality environment.

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Euro head urges users to agitate for standards

USER groups should use their muscle in bringing about a break-through in telecommunications standards.

Leon Smulian, head of the telecommunications section at the European Communities Directorate general of internal affairs and industry, said last week that a homogenous continental scale market is essential if the Community is to compete worldwide.

Essential to that is a new telecommunications infrastructure, with a high common implementation of standards.

Smulian, who was speaking to delegates at the annual Telecommunications Managers Association conference in Brighton, said that liberalisation of telecommunications would not itself automatically relieve users from the inflation of proprietary standards that trap them into proprietary systems.

European Community governments, he said, must agree to exchange a national approach for a common approach. Such an approach has been adopted by the European Commission, but unanimous agreement has yet to be reached in the Council of Ministers.

His views were echoed by at least one manufacturer. Graham Burke, director and general manager of Plessey Communications Systems, said that short-term competition on the part of manufacturers must be subordinate to the long-term good.

(Otherwise the freedom to compete that comes about with liberalisation could move into anarchy, with claim and counter claim by manufacturers as to who is really meeting international standards.)

Burke said standards present an urgent marketing problem for computer companies, which must accept that some part of their computer systems could be replaced with parts from other manufacturers.

Burke seconded Smulian in calling for users groups to take a leading voice. They are not doing enough, he said, to ensure a co-ordinated voice from all of Europe towards standards.

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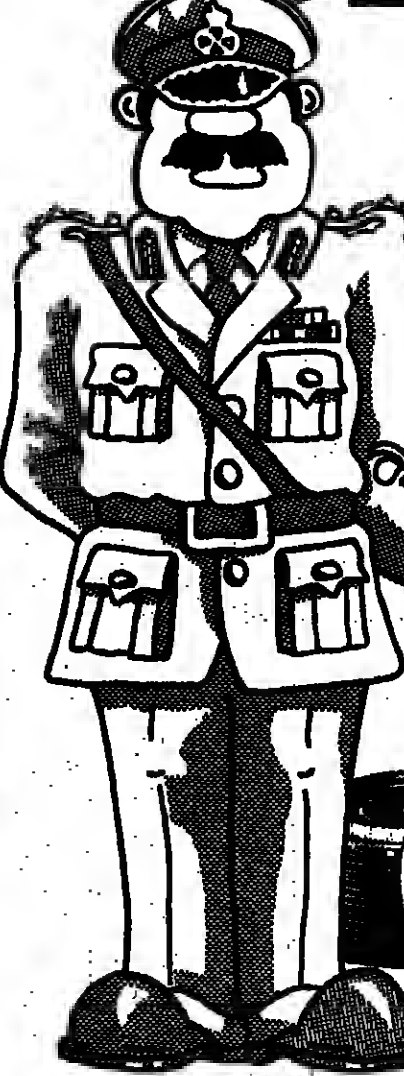
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BURKE... "Short-term should be subordinate to long-term good."

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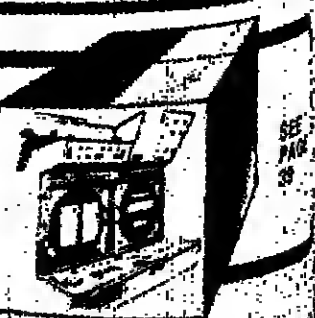
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Acorn faces education challenge from Norway

by Philip Hunter
NORWAY'S first maker of personal computers is set to challenge the Acorn on its home ground with a machine aimed at the education and schools market.

Kuntiki-Data of Oslo is now looking for a UK distributor or software house to import its machine and later go into volume production in the UK if sales take off.

The computer was designed in spring 1983 with a view to being adopted as the Norwegian broadcasting machine as the Acorn was in the UK.

Like the Acorn, the machine runs BBC Basic, but managing director Lars Krohn says that he has taken advantage of his company's late start to improve on the Acorn and other established makes.

The most striking improvement, Krohn thinks likely to elicit the broadcasting contract this autumn, is the unique ability to synchronise computer output with the television pictures.

It also offers the ability to read floppy disc drives written for other computers such as the Apple. Another advantage is an upgraded version of the CPM operating system called KPM.

The machine sells for about £900 in Norway including 64K memory and a diskette station, making it about £300 cheaper than the equivalent Acorn version. But Krohn admits that the price would have to come down for the competitive UK market with bigger volume production.

Takeover buff rakes in the cash

by Philip Hunter

A STRING of big orders has given the London-based small systems house Optim MCS cash for more takeovers. Early this year it bought out the European arm of a US mini maker, and also picked up a small part left from the collapse of the Altergo software empire.

Managing director Mike Burden says that he will soon complete the takeover of a Home Counties software house, with another bigger buy coming soon after. And next year Optim will be seeking a quotation on the Unlisted Securities Market to raise cash for continued expansion.

The company last week announced its biggest order yet, worth £2 million for minis and micros from the big UK furniture buyer Floreat.

Optim was born last year from the US Monotype Corporation following a buy out of subsidiary Monotype Communications spearheaded by Burden. The company inherited its first product from Monotype, a standalone multi-tasking micro called the Ace.

Optim quickly brought a minicomputer into its product range by taking over the European end of MCS Minicomputer Systems early this year. The next

move was to pick up some of the Altergo hits.

Both the Ace micro and the mini called Micos are still made in the US. A logical takeover would be of a company with a UK factory to build the machines and finish the job of severing the remaining US ties.

The Floreat order involves supply of both the Micos mini, which costs about £40,000, and the Ace micro, which sells for around £10,000. The order is likely to be later extended by up to another £1 million as Floreat extends its existing total of 137 retail companies to over 200 next year.



BURDEN... Plans more takeovers and aims for USM.

Tatung to make micros

TATUNG (UK), which two years ago took over television production from Decca, is now producing monitors and terminals for computer use, and also plans to enter the microcomputer market early next year.

VDPs, printers, disc drives, a business computer and a home computer are the products planned for the future. The disc drives will use standard 5¼in diskettes and be compatible with the Apple 2. A dot matrix printer capable of italics and graphics should be available by the end of the year.

The planned business microcomputer will be based on a Z80A processor.

DEC takes to Ayr in expansion bid

by Caroline Burgess

DIGITAL Equipment is to make its personal computers in Ayr, Scotland in its bid to expand into the European market. The transfer of production to Europe started last year with changes at its West German factory.

At present the Ayr plant only carries out final assembly and testing of minicomputers. In a gradual phase-out programme it will start by manufacturing circuit boards and progress to entire central processing units.

The Ayr factory was opened in 1976 and expanded in 1979. It now employs 570 workers and has over 370,000 square feet of manufacturing space.

The changes are not expected to lead to any new jobs.

According to Darryl Barbe, Digital's UK managing director, the changes will involve the re-training of many of the staff. It is expected to take between 12 and 18 months to complete the phase-out programme.

The choice of the Scottish plant was based on the previous success of the plant and encouragement from the Scottish Development Agency and the Scottish Economic Planning Department.

The west coast of Scotland also offers good communication links, including two international airports. Ayr's present work will be transferred to Digital's Glasgow plant.

This move has been encouraged by the Industrial Development Authority of Ireland.

The Glasgow plant has been manufacturing minicomputers since its opening nearly 12 years ago.

Both IBM and NCR have chosen Scotland for the manufacture of their personal computers for the European market. ACT recently announced production of the Apricot at Glenrothes, thus becoming the first English-based company to move into Scotland.

In October last year Wang announced plans for a main manufacturing site at the University of Stirling.

Micro firm makes record gain

MICRO Business Systems made record profits of £100,000 in the half-year up to the end of June, the chairman Clive Ridd announced this week. The period was up to 10 months more than the first half of the whole of last year.

The group's sales and rentals of terminals and software support engineering and operation has been put up and the new division for personal computers is prospering. The board is considering a staff share scheme.

Thumping loss

MATTEL, of California, by the slump in video game sales, posted a \$156 million loss for the quarter, closing on July 1. The same period last year it made \$17 million. Sales fell nearly a third on 1982 earnings. It expects a similar drop over the whole year of 1983.

Healthy growth

EPS CONSULTANTS, a London software house, has reported healthy growth in its first quarter, £1.2 million. This was by joint managing director Power to the micro market.

HP bid

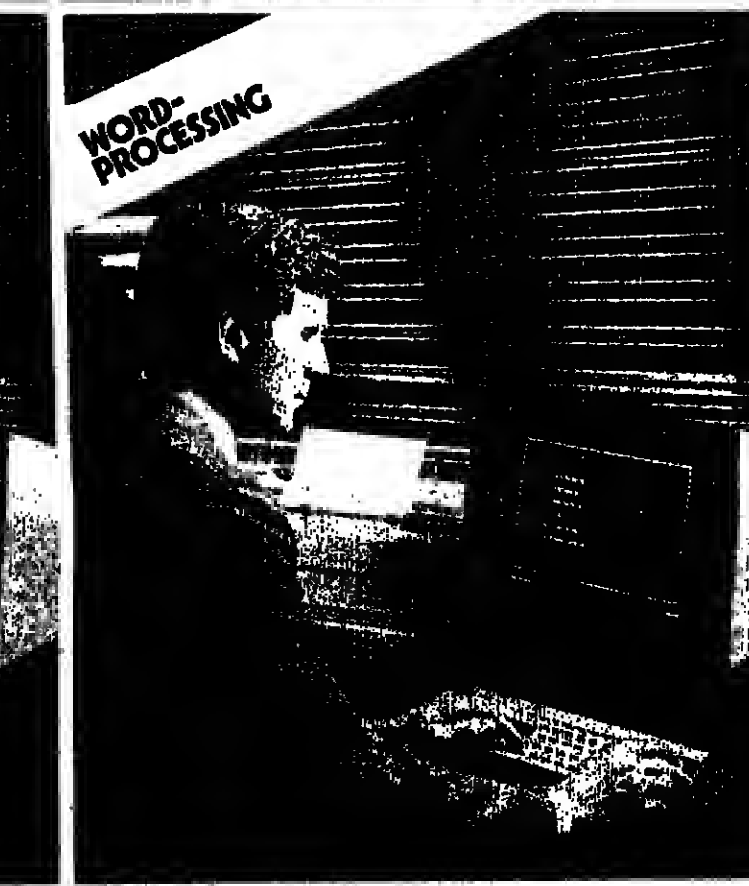
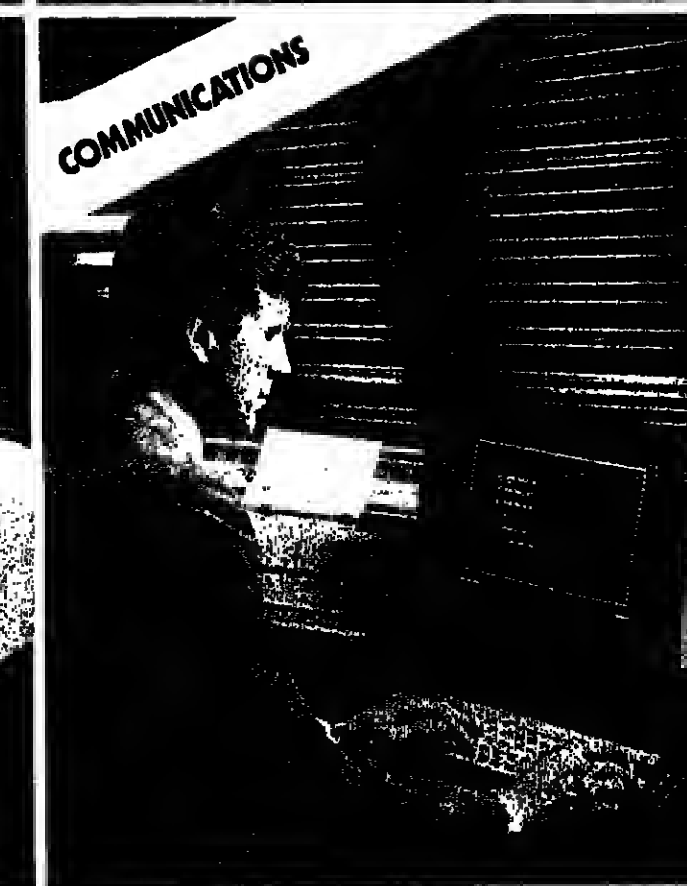
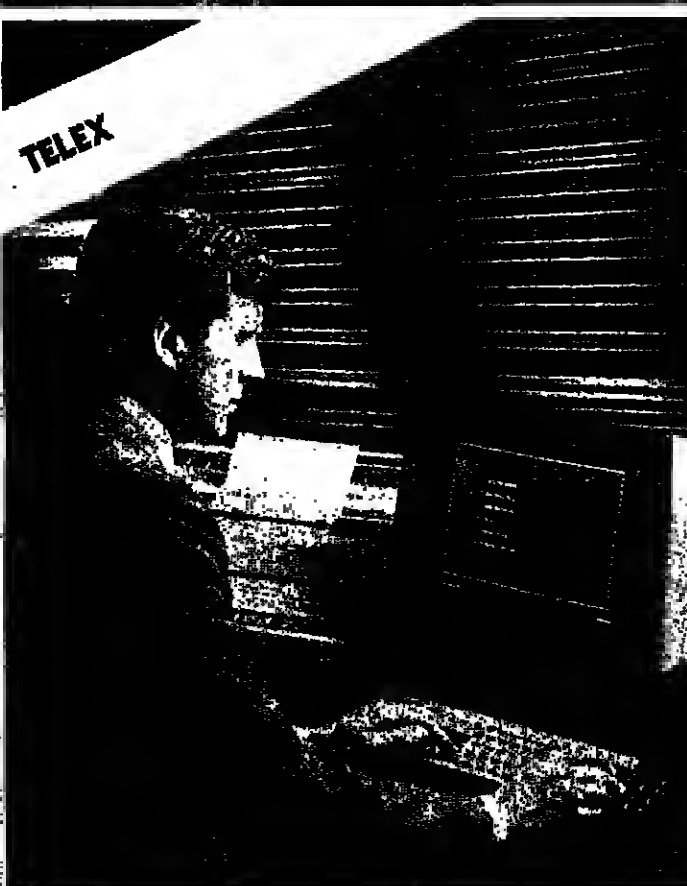
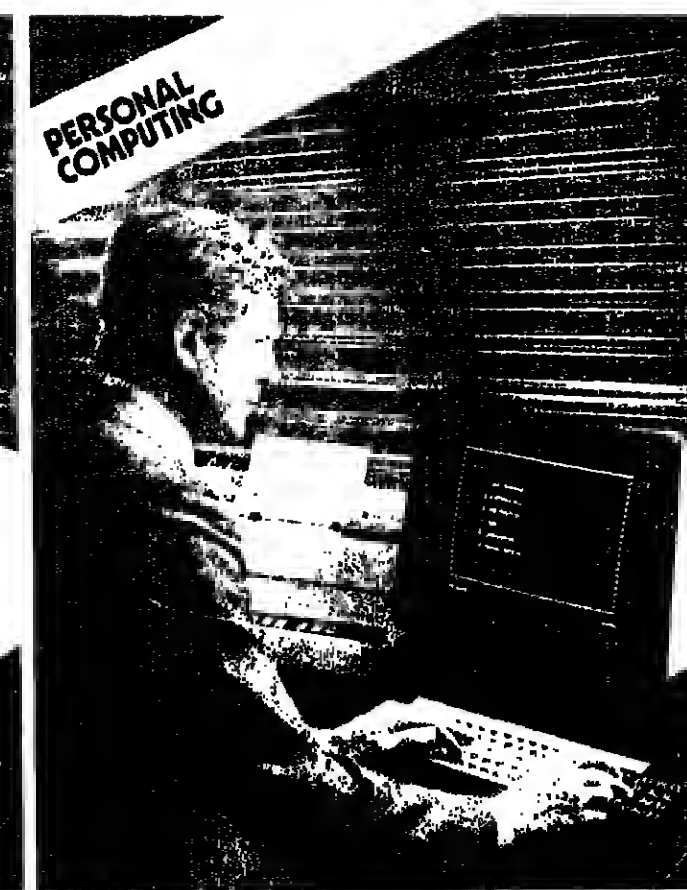
US MINI manufacturer Packard (HP) is buying its Japanese affiliate Hewlett-Packard for \$1.1 billion, employing 2,000 people. The firm's sales of \$250 million, a joint venture between HP and Kawasaki-Hokuriku of Japan, wants to up its take to 75%.

Hat-trick of loss

THE diverse Computer Automation group, of Boulder, lost \$74,000 on turnover of \$1.1 million in the year up to June. The firm's sales are down but plans to recruit salesmen to put things right. Automation has shown a 10% drop.

Nixdorf does well

WEST Germany's top computer maker Nixdorf did well with its systems and electronics divisions to increase its profits fifth in the first seven months of the year. Small to medium-sized systems were also helping to expand the group.



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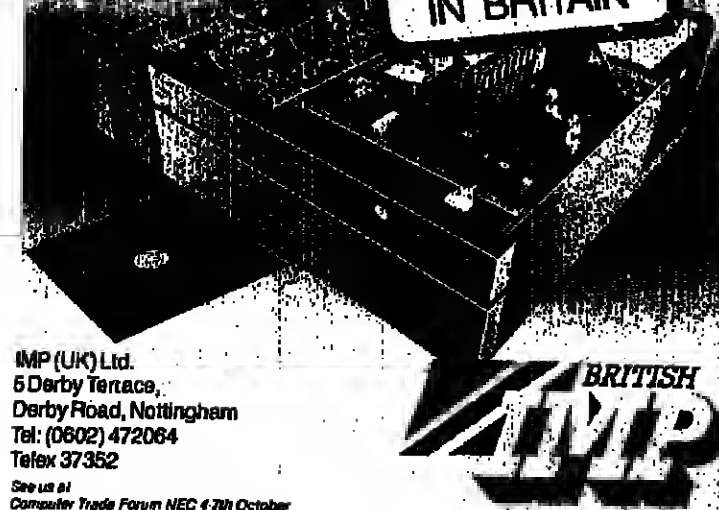
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Make your Rita choice

NOMINATIONS now are being accepted for two major awards for the UK computer industry. Awards for 'Systems Innovation of the Year', to be sponsored jointly by the National Computing Centre and Computer Weekly, and 'Newcomer of the Year', sponsored independently by Computer Weekly, will be given under the Recognition of Information Technology Achievement scheme (RITA).

The ground rules for nominations are simple. Select your choice for 'Newcomer of the Year', or 'Systems Innovation of the Year', or both, and complete the form below. A separate entry should be made for nominations in each category.

The award to 'Newcomer of the Year' will go to that start-up computer company which the judges think best exemplifies how the UK can remain a force in information technology markets.

The company will have been in business less than two years as of the time of close of nominations on September 30, 1983.

The company must be of UK origin, and should be involved in the provision of hardware, software, or services to the information technology market.

'Systems Innovation of the Year' will be awarded to that complete system, component, peripheral or part of a system which is judged to be the most outstanding example of achievement in the field of information technology in the UK during 1983.

The equipment in systems must be available in the UK during 1983, and the innovative element in the system must be wholly or predominantly of UK origin. Software alone and word processing or office systems are precluded as these are covered by other RITA awards.

Companies or individuals cannot nominate themselves. Members of the staff of Computer Weekly, the National Computing Centre, and Clapp & Pollak may not enter.

In each award category, a case of wine will be awarded to the person who first nominates the ultimate winner.



Recognition of Information Technology Achievement

Return this form, to arrive by first post September 30, 1983, to: Linda Allen (Rita Awards), Computer Weekly, Room L218, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS.

I wish to make a nomination for the Newcomer of the Year/Systems Innovation of the Year award. (Please delete where appropriate. If you wish to nominate in both categories, please photocopy this form.)

My name _____ Job title _____

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My nomination is (Newcomer or System): _____

Company Address (full postal address if possible) _____

I attach a short statement explaining why my nomination should win.

Signed _____ Date _____

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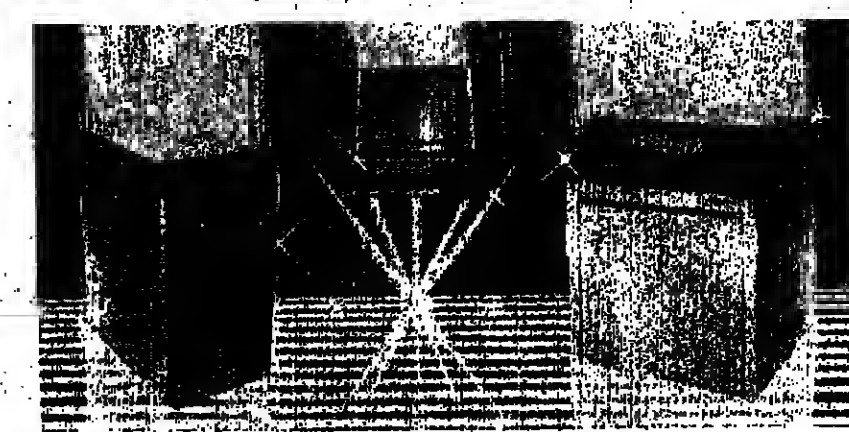
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MICRO NEWS

US stars face money trouble

FINANCIAL troubles dog US microcomputer industry stars. Osborne's slide towards bankruptcy overshadows others' problems, but the outlook is grim at the business end of the market as well.

IBM continues to increase Personal Computer shipments hand over fist while rumours of the impending arrival of its Peanut machine continually cause flutters of alarm for rivals at the lower end of the price scale.

And it is IBM's domination of the small business micro market — and almost of the grey area between home and business before its product is launched — that lies behind the trouble.

Victor Technologies, for example, the company that builds and sells Chuck Peddle's Victor/Sirius 16-bit, has run up against IBM. Victor reported heavy losses last quarter — over \$11 million — and has been forced to lay off staff.

Last week it dropped another batch of people, bringing the total redundancies in well over 1,000 in the past couple of months.

There have been changes at the top in Victor, too. Peddle, who set up the original Sirius Systems Technology and headed Victor Technologies after the merger of Sirius with the Victor Business Systems subsidiary of its backer the Kilde Corporation, has moved aside in favour of a more experienced manager — as Adam Osborne did at Osborne Computer. Richard Couch has come in as chief executive officer, leaving Peddle more a figurehead.

Victor's main problem seems to have been a shortage of disc drives, leading to delivery problems, and in having an over-heavy sales force. The timing of its product did not help either.

While the Sirius has been a runaway success for UK distributor ACT, because it got in before IBM, to the US the Victor 9000 appeared on the scene concurrently with the IBM PC.

"If you start the same day as IBM you've not much chance, even with brilliant technical people," observes ACT (Sirius) managing director Ed Sherman.

Now Victor's problem is trying to turn a 60-year-old company set in the ways of selling calculators and business equipment to micros.

New goodies are on the way for Victor — ACT's UK-grown Apricot for one. ACT will start shipping Apricots over to Victor in the US in January.

In the meantime, Victor's major backer Kilde is prepared to invest more money to tide it over — saving it from Osborne's immediate fate.



PEDDLE... Steps aside as Victor struggles.

Elan is late for Christmas dash

by Caroline Burgess
A BRITISH newcomer to the cut-throat home computer game, Elan Computers, previewed its first product last week. But the £200 micro — the Enterprise 64 — will not hit the shops till next spring, missing out on the expected Christmas sales boom.

"It is a product for the future," said Elan's chairman Lachu Mahiani, adding that he was not worried about competition because of his confidence in the product.

Marketing manager Michael Shirley was equally bullish. "If there is only a handful of home computer companies in two or three years, we shall be one of them," he said.

Elan's hopes for market share — 10% in the UK market next year — are based on the technical features of the machine. "We have an unrivalled product," claimed technical director Robert Madge. Design and production of hardware and software are in the hands of

London-based Intelligent Software.

The Enterprise 64 is built around a 280A processor and offers plenty in the way of memory, stereo sound and colour graphics.

It starts off with 64K of RAM expandable through add-on units to 3.9 megabytes. The RAM expansion units, like the 3½-inch microfloppy drives, clip directly on to the side of the keyboard console with its integral joystick, or can be stacked up separately, with plastic trunking to tidy up the nest of connecting cables.

Software for the machine will centre around games packages and educational programs on cassette or ROM cartridges, with some business applications. Languages will include Porth and Lisp as well as Basic. A word processor is built in.

Elan Computers was formed in

1982 by two unnamed international companies to produce and market the Enterprise range of home computers. Its aim is a 10% share of the UK market next year.

Mahiani plans to manufacture 150,000 units in Elan's UK factories in the coming year and hopes to be trading at a rate of £30 to £20 million by the end of 1984. This should put Elan on course for profit in 1985, he said.

But with the Enterprise, Elan is aiming squarely at a market for which many companies are fighting hard. Price cutting is rife, particularly in the US.

By next spring a base price of £200 for a 64K eight-bit colour machine seems bound to be at the high end of the range.

Elan plans a £2½ million advertising campaign, including television and press adverts and exhibiting at shows. It will sell Enterprise through major retailers.

Micro News is compiled by Robert Parry

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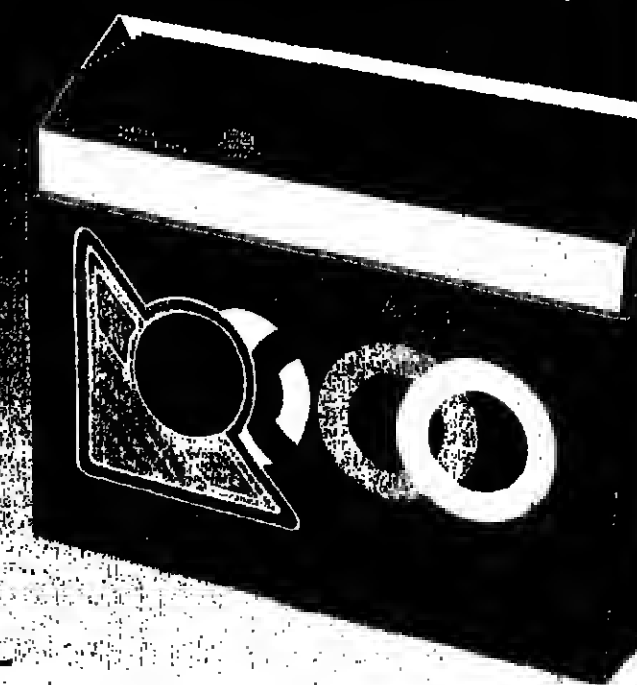
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CONTROL DATA

£1,000 kit for school winners

PRIZES in next year's schools software competition sponsored by Barclay's Bank have been increased by 50%.

More than 100 schools are expected to enter the competition and the closing date is February 29, 1984. The winning students of the two classes, under 19 and under 16, will each get computing equipment valued at £1,000 and the two runners-up will be able to choose kit for £500. Third and fourth prizes are £300 and £200.

The event, organised by Kent University, is intended to attract only serious programs which can later be used commercially. In previous years the students' programs have been taken on by such companies as a Spar local grocery shop, an hotel in Newquay, Cornwall, a double-glazing business, a draper's store and a Yorkshire newspaper chain. Winning entries to carry off the Kent Software Trophies in 1982 went to Wadebridge School in Cornwall for the junior class, and Amersham Grammar School for the senior class.

Aussie tour

UK SOFTWARE vendors are being invited to join a promotional tour to Australia and New Zealand to sell British products. Ayre Associates, a Surrey company which specialises in marketing, has arranged a tour to Perth, Melbourne, Sydney, Wellington and Auckland to interest dealers and arrange distribution of products. Software houses which wish to join in will be charged £2,400 for the privilege of having their applications demonstrated to selected dealers.

More choice

US MINI maker Perkin-Elmer has broadened its options under the Unix multi-user operating system with three new compilers and a word processing system. The compilers are Sibol, which allows DEC Dibol programs to run under Unix, Coral-66 and RM/Cobol. The word processor is Ace Microsystems' Lex/32.

Partners

ICL is to take its Partnership-25 scheme, a joint venture with software houses to promote the System 25 mini, to Southern Europe next month. Plans from Austria, Switzerland, France, Spain, Portugal, Italy and Greece will be invited. They will join the list of 24 North European partners ICL convened in Brussels last week.

Software File is compiled by George Black

Claire Gooding reports from the European Unix User Group (EUUG) meeting in Dublin



RANDELL... "Anything of any merit has an ancestry."

Newcastle fails to give the answers

NO-ONE has yet solved the problem of networking under Unix and the Newcastle Connection is far from being the ultimate answer. That was the message from a stormy debate at the European Unix User Group in Dublin.

The Newcastle Connection, originally known as Unix United, seems to have united most Unix followers against it.

The researchers and academic users of Unix who largely make up the EUUG membership claim it has been pushed as a universal panacea to Unix networking problems.

The system, developed by Newcastle University and MARI, the Newcastle-based Microelectronics Applications Research Institute, has had much commercial success, but no-one was in Dublin to defend it.

"Unix was not designed as a networking system in the first place and the way to make it into one is not to load it down with extras," said David Tilbrook of Imperial Software Technology. "The Newcastle Connection is not really new; it's been done before and proved to be grossly inefficient."

Others who have used the Newcastle Connection said it was too unreliable and cumbersome for

commercial use or simply did not work. Connection author Brian Randell later denied that it had ever been presented as completely new or a panacea.

"Anything of any merit these days has an ancestry," he said. "Nor have we said it was networking software. It only uses networking software."

Tilbrook dismissed most attempts at networking Unix as a way of distributing bits, not information. "I don't care how the message reaches me, but I don't want to have to figure out what it was."

He is supported by many EUUG members in believing that Unix files and I/O techniques need total restructuring if the system is to be successfully networked.

Tous Hagen, of the Stichting Mathematische Centrum, disputed the need for the networked products on offer. "Most people just rely on the plain old telephone," he said.

Several solutions are available since pressure from the commercial users of Unix made a major issue of networking. The 13-Net system from 3-Com uses Ethernet techniques, which limit the distance covered, while Ungermann-Buss's Net-One uses a broad

band which is expensive, but dismissed by Hagen as "too faciturer dependent".

The Newcastle Connection, the ring technique, which is that all programs are portable whether they are for networks. This loads the system so that non-networked users their programs pay a peak degraded performance.

So far, protocols and procedures have divided, not guided, the community. "People who do protocols too often do programs," said Peter Collis of the University of Kent. "I should have to implement the design sitting round a committee table before they would accept it."

The latest release of the University's respect software, release 4.2, de pretends to be an answer. It gives tools for users to use their own answers rather than a single network vehicle.

The supplier likely to have influence is the owner of AT&T. Its research division, Bell Laboratories, is said to be evaluating product called to but the marketing arm, Bell Electric, is maintaining its silence.

Unix gets DEC approval

MINICOMPUTER manufacturer DEC has put its stamp of approval on the Unix system by becoming a supplier. DEC put its Unix software, called V7M-11, on show for the first time at the European Unix User Group meeting.

DEC's arrival as a supplier is being hailed by some as the final "legitimation" of the system, comparable to IBM's endorsement of the micro market. DEC has licensed the system from its owner Western Electric to sell with its own operating systems such as RSX-11M.

The company raised some eyebrows by plumping for Version

Bell could release first 'window' terminal

UNIX originator Bell Labs, may yet beat its competitors to supplying a Unix terminal which supports "windows". The Bli terminal, used by researcher Bob Pike at Bell in his work as a programmer, is being prepared for release as a product.

The Bli allows programmers to use a mouse controller to open

VII of Unix, now superseded by System III. But by choosing Version VII DEC has ensured that its Unix will run on the entire range of PDP-11 machines, which have long been a vehicle for Unix in the academic community. For its Vax version, announced but not released, DEC has gone to Berkeley.

In the opinion of many users, Berkeley has done more than the originator Bell Labs to make Unix robust enough for a commercial environment.

Michael Tilson, vice-president of Human Computer Resources, sees DEC's move as a boost for the entire Unix community. "Now

White House system soon to be marketed in UK

A MAINFRAME database system which is used in the White House will soon be marketed in Britain. It is the Model 204 database software from the Computer Corporation of America, based in Cambridge, Massachusetts. CCA has just reached agreement with another American firm, Teledata, to market the product in Europe.

Model 204 has gained about 140 users in the US since it was put on

the market, the number of users is bound to go up worldwide. IBM will come in soon and others sizeable manufacturers will follow.

IBM already supplies Unix on the Series 1 mini and has long held a source licence. As yet its Unix operations have been low-key.

Tilson's caveat about DEC is that it may not include all users need. HCR supplies its own Unix for DEC kit called Unity, with extras such as the relational database Mistress.

"It's as well for purchasers to find out what costs extra," said Tilson.

Standardisation is no up to us — AT&T

AT&T stayed on the fence while users argued last week about standardisation of Unix. The biggest concern among delegates to the European Unix User Group meeting was that the Unix operating system should not lose the portability which made it popular.

But the originator and owner of the system, AT&T, is not prepared to arbitrate, and users who look to it for a standard will be disappointed.

"We are committed to Unix and we want to see it standardised," said AT&T marketing operations director manager Jim Kennedy.

"We agree that a standard needs to be set up and Bell is represented in the arrangements, but it's not up to us to dictate them."

Unix licensing manager Bill Murphy emphasised that the users themselves must demand and create standards. Proposals, by the standards group of the US/UK GROUP users' organisation are the subject of a bitter debate.

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AT&T stayed on the fence while users argued last week about standardisation of Unix. The biggest concern among delegates to the European Unix User Group meeting was that the Unix operating system should not lose the portability which made it popular.

But the originator and owner of the system, AT&T, is not prepared to arbitrate, and users who look to it for a standard will be disappointed.

"We are committed to Unix and we want to see it standardised," said AT&T marketing operations director manager Jim Kennedy. "We agree that a standard needs to be set up and Bell is represented in the arrangements, but it's not up to us to dictate them."

Unix licensing manager Bill Murphy emphasised that the users themselves must demand and create standards. Proposals, by the standards group of the US/UK GROUP users' organisation are the subject of a bitter debate.



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Investors in Industry.

PLATFORM

Robert Howells is president of National Advanced Systems (Europe).

The PCMs view new IBM plan as a paper tiger

"FROM what I hear about IBM lately, you PCMs are in for a really hard time. Are you sure you can follow the leader when it is moving at such an explosive pace?"

This question was asked when I met the director of one of Europe's largest DP operations, during a recent visit. He had just read the recent *Fortune* article entitled "Meet the new lean and mean IBM" and the *Time* cover story "The colossus that works". He sincerely wanted to know if my company, one of the largest PCM competitors to IBM, had actually felt the ground tremble and, as a result, was the loose earth about to cover our remains.

With a bit of licence, I quoted Mark Twain: "Contrary to what appears in the Press, reports of our death are exaggerated." I spent the first three courses of our luncheon explaining to my companion that a group of companies that had built an industry with a combined annual turnover over \$2.5 billion was not about to roll over and die just because IBM was attempting to make the game tougher.

At long last, IBM has decided to alter significantly its marketing strategy. It now feels considerably less inhibited by government constraints in obsolescing its current products at an accelerated rate; it is willing to make special deals on prices and is stirring the rumour-mills as never before on new product announcements.

There is no doubt that understating IBM could become a very short route to the graveyard and the PCMs have learned this lesson well. But they, as well as the users they serve, are not about to let the born-again giant from Armonk return to the good old days when IBM set the industry standards and dictated prices, performance and progress.

It is no longer assumed in the PCM industry that what is good for IBM is automatically good for users. It was the needs of the users that led to the birth of the PCM industry. Today the standards of the industry are the standards of the users. To many of them, IBM is another PCM company, though it just happens to be the biggest.

So users, as well as PCMs are concerned when IBM objectives are spelt out. *Voice* recently quoted IBM vice-president Buck Rogers as saying: "It is no secret. We want all the business if we can get it."

This brings back memories of the control IBM used to have over the user community and the positive benefits that PCMs brought to the market.

The first, and perhaps most important of these, was the decontrolling of the market from one company's dominance to a genuine choice of alternatives. Users are now free to select hardware suppliers without contemplating the major upheaval that a change in operating systems could entail.

No longer are new products introduced at the convenience of IBM, but rather on the application



of the latest technology to meet user demands. Reliability has become an important consideration, now there are alternatives. It is no longer necessary to accept frequent hardware failures as normal.

The PCMs have provided a buffer against planned obsolescence in IBM products and allowed customers to use their equipment longer than IBM might wish. In many instances, PCMs have kept their products more compatible than competing IBM products by continuing to enhance them functionally.

The record of the National Advanced Systems' AS7000 and AS9000 families or the older Andale 470 family provides proof. For the user this has brought a significant increase in his return on investment with these products.

Objective price/performance evaluations can now be realistically made, not only of a hardware but also of service and support. In fact, new standards for customer support for hardware and software have been attributed to the PCM industry. I frequently have customers tell me about the significant improvement that has been made by IBM after they installed their PCM machine.

But the user alone cannot prevent the re-emergence of IBM dominance. It is the major PCMs that will defend their market position, despite current speculation to the contrary about revolutionary IBM strategies and tactics. The technology and the architectural flexibility of the major PCMs will allow them to continue to track IBM competitively.

The myth still persists that IBM leads and the PCMs slavishly copy. Nothing could be further from the truth. Andale's V-6 for example was faster than anything IBM had at the time when it was introduced. NAS 9000 series was the world's largest commercial computer well before IBM launched the 3081, and its AS9080 is the fastest commercial computer generally available today.

On semiconductor technology, the PCMs are regarded as far ahead to the leading edge than IBM. A telling example is that professional IBM watchers forecast that IBM is planning to move to BCL gate-array technology on the Sierra series, while the PCMs have been there for several years and are now set to venture in new directions.

On technology, reliability, price/performance, service and support, the PCMs have demonstrated that they can compete with IBM very effectively. The industry's objectives are not to attempt to topple IBM from its position of dominance but rather to offer the users genuine alternatives. I don't believe anyone would suggest growth potential in the DP industry is waning. But PCMs expect to get their fair share of this growth potential. We are far from ready to call in the grave-diggers.

Robert Howells

10 YEARS AGO

FROM COMPUTER WEEKLY OF SEPTEMBER 20, 1973: ICL signed an agreement with Sofget of France with the intention of co-operating on European software projects... In a judgment of far-reaching implications for the computer industry a US court ordered IBM to pay damages of \$352.5 million in *Telex*. It was alleged that IBM had adopted marketing strategies which were tending to eliminate *Telex* as a viable competitor in peripherals... *Altergo* (Software) announced its intention to market packages in the US, and to set up a New York office... *Compeq 73* opened at Brighton's Metropole Centre, and attracted 69 exhibitors and 4,014 visitors over the three days.

PROFILE

Man who has changed DEC's fortunes in UK

DIGITAL Equipment's UK managing director, Darryl Barbé, is proud to be "one of the real Californians", tracing his family back four generations there. He readily notes the irony that, although he is very much of California, he has spent much of his working life abroad - the last seven years in the UK.

After graduating in economics at the local Stanford University in the early 1960s he joined Hewlett-Packard. He did not come into contact with computers at that stage: "It was in the pre-computer

by John Riley

days, when Hewlett-Packard concentrated on electronics and test equipment," he says.

While with the company he got his MBA (Master of Business Administration) degree. Not long afterwards, he was faced with the choice of leaving California or leaving the electronics business. He chose the latter, and moved into a completely different field - sugar refining.

Paradoxically, it was at the sugar refining and marketing company he joined that he developed his interest in computers. He designed an inventory control system, but comments, with a smile: "I left before it was tested." His interest in computers next landed him a job with Singer Business Machines, which finally lured him out of California.

He stayed with Singer for eight years, including a year in New York and six in Europe, where he did "everything from sales and marketing to long-range planning," and ended up running

DOWNTIME

Weyer's the problem?

THE many enemies of the *Daily Mirror*'s columnist Paul Foot claim him as the fighter of lost causes. But many company directors have had good reason to fear Foot's probing telephone.

British Telecom's new deputy chairman Deryk Vander Weyer, however, seems to have kept his nerve when Foot put on his boots to attack his appointment. What, Foot asked, did British Telecom think of the appointment of a deputy chairman who was still on the board of Barclay's Bank, which owns a fifth of BT's competitor Mercury?

BT was courteous if slightly evasive with its reply that the appointment was a welcome and obvious one, as Weyer had been a non-executive member of BT's board for some time and had wide experience in the City, just what the board needed to see it through privatisation.

This sounds reasonable, but Weyer yielded to the temptation of splitting hairs, by saying: "The board of BT is confident, as I am, that there is no conflict of interest. The shareholding in Mercury is

held by Barclays Merchant bank, a subsidiary. I am not on the board and take no part in the merchant bank's management."

When first is last

WHEN somebody claims a first in our industry, the cynical part of my brain is alerted. So I thought hard when I read that the independent television company Central was to undertake a first in broadcasting by sending an entire computer program over the air.

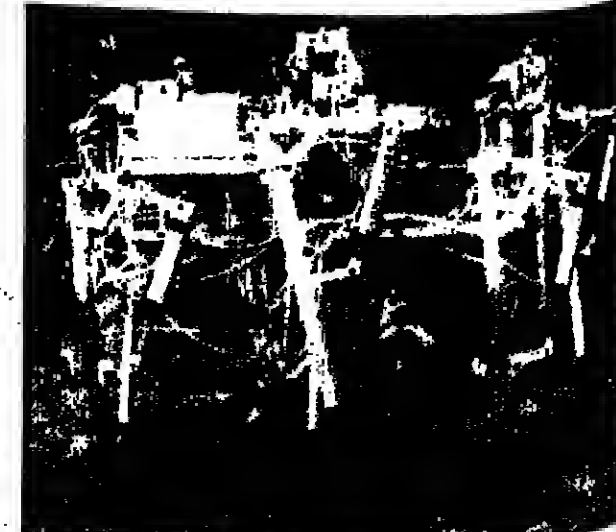
Todd beats US Army

NOT many people can boast they've built a walking robot in their garage. Indeed Dave Todd, who made the delightful structure in my picture, has no real competi-

tors in England to the best of my knowledge.

His main competitors are American universities developing robots for the US army. These have proved difficult and expensive, the chief problem being to prevent them losing their balance on steep slopes and when negotiating obstacles.

Todd's pet, named Marvin, finds fallen tree trunks insurmountable, but with its low centre of



ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, September 22, 1983

The age of the user dawns

THE future will be packaged. This is a message that the software houses that specialise in packaged programs have been trying to get across for about 10 years. And as the *Computer Weekly*-IDC report shows, it is one that the computer users of the UK have finally taken to heart. The delay has been caused almost as much by the innate conservatism of the traditional installation as it has been by the time that the software houses took to refine their products to an acceptable level.

The use of packages is a major step in bringing the advantages of computers to the DP industry itself - in this case to the shop floor or coding rooms of the large installations. Many people who believed the slogan of the 1960s that "computers would take the drudgery out of clerical work" wondered about the reality of it when first faced with the large coding halls where the systems of the time were constructed.

Packages will certainly relieve some of this drudgery. But they will impose other burdens on DP staff. They will have to become more professional and more concerned with the end user.

In the same way the programmers will have to have a better understanding of the needs of the end users and of their own specialised methods of working.

There will be little call for the straightforward technician, the Cobol coder, super or otherwise, in the installations of the future.

The DP manager will have similar problems. DP expenditure has slipped away from him. End users are defining their own systems and buying them without reference to the computer departments.

Rather than bemoan this loss of control the DP manager will have to become more involved in the work that the installation is supporting. Even with the best of packages there is a need for an evaluation by someone with a technical background. But this evaluation will be useless unless made in the context of the users' needs.

To satisfy those needs the DP manager will need not only to have a full command of his own skills but a thorough understanding of the aims of the organisation. For a long time these did not get sufficient attention from computer staff engrossed in the technicalities of their own industry. The eighties will be the age of the user.

The feeble French

JUST who do the French think they are? This month the French government has gone bleating to its EEC partners about competition from the US and Japan and calling for import barriers. It wants its neighbours to encourage mergers of high-technology companies across national frontiers.

And this week Machines Bull chairman Jacques Stern called on European countries to "mobilise all Europe's forces" to develop a supercomputer.

All this sounds fine in theory. But underneath it all is the feeling of desperation which surrounds the feeble French computing and electronics industry.

The national computer manufacturer has staggered from year to year - last year its losses were £1 million. And the joke is that it uses Honeywell products built under licence. Meanwhile a five-year plan to put the French industry on a par with Japan and the US is far short of its goal.

In the computing industry they have given their companies more protection than any other European country because of the large number of "commercial" organisations such as banks which are covered by government procurement policies.

Collaboration is to be encouraged: ICL, Siemens and Machines Bull are to be congratulated for setting up a joint research centre in expert systems.

But such collaboration must be from equal positions of strength - not simply to ball out a desperate partner which cannot survive on its own - and which might pull out if circumstances change in its favour.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by P. J. Warr of Sevenoaks, Kent, who wins £5, bug, byte, decompiler, deck, dump, fallover, font, glog, hertz, link, load, modem, package, patch, protocol, ram, rom, table, text.

The above words are all used by computer experts. What funny people! - and no wonder computers get blamed for everything.

LETTERS

Some dealers do give back-up

PERSONAL computer sales increase consistently year by year. At the same time so does the dealer's responsibility to service end-users comprehensively. Recently, in an article by David Ferris (*Computer Weekly* August 4) it was suggested that dealers are unable or unwilling to supply the kind of back-up needed to support fully a modern personal computer system. It is important to clarify this statement in the context of modern sales strategies.

When personal computers first began to sell in substantial quantities, not every group involved in their sales had the correct qualities or motivation. Like any high growth industry, the personal computer market attracted the quick buck men whose philosophy was "stuck 'em high, sell 'em cheap, then forget them." Then there were the technicians: great in technical knowledge, but ineffective as salesmen. However, as the computer industry matured, so

did the distribution methods. Dealer networks are now far more structured and co-ordinated. For example Apple Computer's dealer network now has a council where, bi-monthly, ideas, common problems and solutions can be discussed with personnel from Apple. This dealer council underlines a belief that service and back-up are an integral part of running a successful computer business.

However, dealers can only go part of the way to ensure that the personal computer industry has a good reputation for service. End-users are attracted by low prices, and low prices can spell disaster as far as service and back-up are concerned. Therefore it is up to the buyer to choose a reputable dealership where the word support figures highly. They must choose a company that reflects sound organisation.

David Ferris seemed to have looked purely at retail outlets

where computers are only one line in a vast range of electronic hardware, but as personal computer software has become more specialised, so have dealerships. Today one can find dealers who concentrate on one-to-one sales, a particular vertical market or communications based systems. With this specialisation, dealers have not only realised the importance of post-sales maintenance support but also areas such as training and advice on system expansion.

Today the majority of personal computer dealers, like ourselves at Albion, are well aware that support has to be on-going if their business is to expand and remain competitive. "Raising the level of comfort of the end-user" is the dealers motto today and the formation of organisations such as a dealer council underline the strong desire to maintain that comfort.

STUART BOWDEN
Albion Computers
London.

Software for engineering

THANK you for the coverage you provided for Oasys in the September 8 issue of *Computer Weekly*. Unfortunately there are a number of inaccuracies in the piece.

Although what you say about the Ove Arup Partnership's reputation for good architecture is correct, the Partnership is known equally well for its structural and building services work. This is reflected in the fact that the majority of our software products are concerned with engineering analysis and design, and not architectural design, as implied in several places in your article.

It is true that we intend to utilise agents to promote our software more widely. However, we also propose to continue to market certain products directly, both from our London office and through Oasys Ireland in Dublin. The situation at the moment is that the Hewlett-Packard 9845 suite of programs is marketed directly by Oasys in London.

The same programs are available on the HP80 and 200 series and are marketed by Integer in England, Scotland and Wales, and by Oasys Ireland in other territories. The Fortran structural analysis and design programs are handled by Struccon for DEC and Data General, and by GBCS for Prime users. Peter Cadman is marketed both from Oasys and Maxcom.

BRYAN SEYMOUR
Oasys
London.

The novice and the cult

RECENTLY I started to do research into the political, economic and social consequences of home computers. I have become so fascinated by the world of computers, a world in which I am a mere novice, that I find I have extended my brief to include such uses as judicial decisions by computers, the use of computers for the legal profession, computer crimes, the use of home computers by disabled people, the legal problems and the legal protection associated with computers and information retrieval systems, and the cult of the home computer "phreaks".

My intention is to write articles, papers, popular books as sole author and serious books comprising various papers.

I estimate my research working full time will take between one and two years but until I have finished my research I am not exactly sure what final form the project will take.

Any help, suggestions, or loans of equipment would be much appreciated.

Dr JOHN SMITH
22a Crossley Street
London N1 6EP

Stop this whingeing

ONE of the most innovative lines of research in the semantic network of computing is artificial intelligence (AI). Without it, computing is just a symbol manipulating, collating, machine for the adders of the world.

I'm sure *Computer Weekly* is not just a rag for reptilian hacks. It's a paper to keep us informed of all aspects of computing. Why then such an excuse of an article by Howard Karten, on the AAAI conference in New York?

It was crudely naive of him to attend such a conference expecting to hear a "model of elucidation". There was such a model in without doubt, but it was only illuminating to people with prior knowledge of the discipline in which the topic resides. The speakers were offering to their peers new concepts and research

results. Their presentations had to be couched in academic terms, not everyday English.

The speakers expect to be criticised and discussed, and cannot afford to offer their results and deliberations in language open to ambiguity.

There is a need for the clarification of these ideas. Trade papers and journals need reporters capable of seeing through the jargon, grasping the essence of academic research and passing it on to the readers in prose (or at least terms) we can all grasp.

It could still be an exercise in egotistic literary display, but it would serve the purpose of clarification better than the 400 words of whingeing complaint in your September 1 issue.

R. BAUCKHAM
Brighton.

Logica had five founders - not three

YOUR Profile (September 8) reveals Philip Hughes' memory to be either poor or selective regarding the early days of Logica.

Three of Logica's founders are still with the company; two are not. This is no reason to claim that Logica was started by three people. For the record, the others of the founding group were Steve Feldman and myself.

Philip Hughes' explanation for the origin of the holding company is strange. Apparently it was "established in Holland, to give Italian joined the IBC, to give a solid foothold in continental markets".

A moment's thought will suggest this to be nonsense. Overseas holding companies are generally a fiscal or legal device with little bearing on operations. (How many major UK exporters find it necessary to resort to holding structures of this kind?)

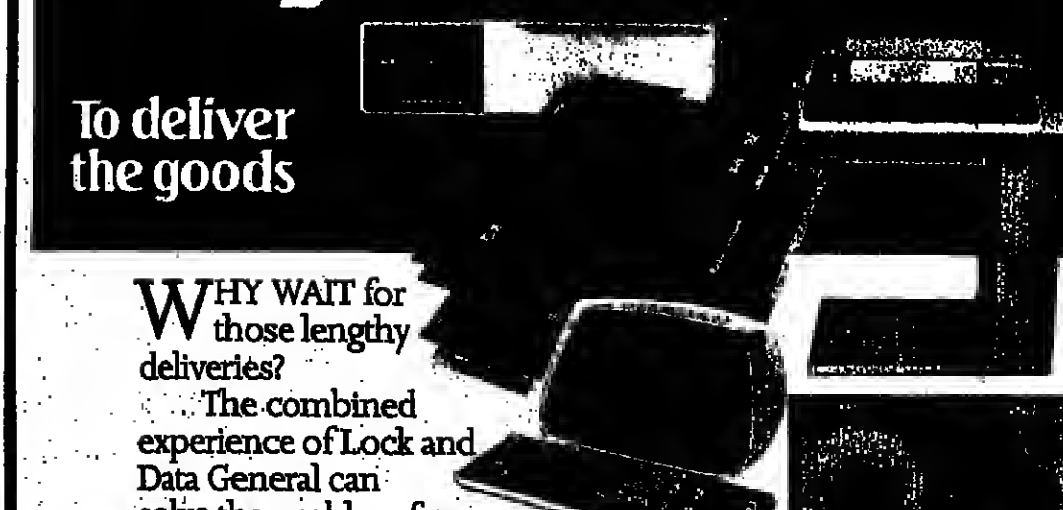
The truth was simpler, more practical, and showed foresight of an altogether different kind. It was also - dare I say it? - not very socialist. Before Logica even opened its doors for trading there was an agreement with its backers, Manning Research Corporation, for PRC to acquire subsequent majority ownership. The Netherlands holding company was to expedite the transfer of shares under the Bank of England regulations applying at the time.

Inter alia, it was intended to relieve the founding and staff shareholders of the burden of paying dollar premium on the proceeds of sale, although in the event, after a lengthy tussle with the Bank of England, it did not.

None of which would matter now, some 14 years on, except that company chairmen ought not to lauder the past. It smacks too much of what I believe the left-wing call revisionism.

JOHN MCNEIL
London.

Combined Experience



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A weekend of fuzzy facts from the experts

DOZENS of eager computer scientists were locked out of the recent Expert Systems weekend at North London Polytechnic.

The first day was dominated by the academics, with what few commercial expert system products there are in the UK coming in for a mauling.

Annie Brooking of the London South Bank Polytechnic attacked the UK's expert systems builders for storming in with their products without thinking first.

"All the computer scientists waste in with their wellingtons and do things over again," she grumbled.

Their activities are against the ideas of structured programming taught by the likes of Jackson and Yourdon, she asserted. "It means they haven't learned yet."

Cyberneticist Arnold Arnold was the most entertaining speaker on the first day, but has still failed to convince many that his so-called General Computer Systems Program Generator is a base on which all expert systems could be built, as he claims.

But he does have a knack of disturbing some of the more established members of the artificial intelligence community.

Masoud Yazdani, of Exeter University, usually a competent and articulate speaker, spent nearly half an hour diverting from his prepared speech to give a rambling and often confused defence of established artificial intelligence work, against Arnold's assault.

On a more humdrum note, conference chairman Richard Forsyth spent an hour trying to explain to delegates what work has so far been done on expert systems.

Workplace is compiled by Philip Hunter



FORSYTH... "We have tended to give computers a false sense of accuracy."

ference chairman Richard Forsyth spent an hour trying to explain to delegates what work has so far been done on expert systems.

He tried to clarify the ideas concealed behind the inevitable jargon the subject has spawned. There is fuzzy logic for example, which involves giving a numeric value to the truth of an assertion. If a person is 28 years old, you could say it was partly true that he was 29 years old.

But how true is it: 90% say, or 99%? That is one of the crucial issues.

Fuzzy logic is needed because facts are always a bit fuzzy anyway, explains Forsyth. "We have tended in the past to give computers a false sense of accuracy."

Another thing you will often hear expert systems people talking about is the decision tree, one of several possible structures for representing the knowledge and the rules needed to exploit it.

Then there is forward chaining, which involves starting with the evidence and then trying to come to a conclusion. And there is backward chaining, which is the converse process of starting with a hypothesis, and then seeing how well the evidence fits.

In practice expert systems combine forward and backward chaining, since each method on its own has a disadvantage. Backward chaining, for example, tends to be too rigid, with the expert systems model sticking to its hypotheses until the evidence against it is overwhelming.

Brooking put the boot into the government's ALvey proposals for being so slow to materialise and criticised the Japanese for being unrealistic in their goals.

The Japanese aims sounded fine taken one by one, Brooking asserted, but as a corporate plan looked decidedly wonky.

PUZZLER
I HAVE here a rather interesting grocery bill, consisting of four amounts which add up to a total of £6.75. The first amount listed is £1.20.

Now, the unusual thing about this little bill is that if the four amounts are multiplied together, rather than added in the conventional way, the total comes out the same as £6.75. Can you work out the three unknown amounts before turning to page 71 for the solution?

A less-than-serious look at word processing by D. Clarkson

Coming soon - a book written by a computer

IT can be argued that the great growth in word processing came initially from within the computer industry itself and was not at first driven by some overwhelming demand from commerce and industry. This is indicative of the early 70s when the use of text editors with minicomputers was necessary for the input of source text files prior to the use of language compilers.

Around this time Basic was viewed by most people in the industry as an inalienable tool for the simpleton. Adventurous individuals began then to find more interesting things to do with text editors.

They became, for one thing, the mainstay for the production of documentation. It was more practical for analysts and programmers to produce their own complete write-up, rather than trust a secretary to read their unintelligible scrawl or make out their mumbled words on audiotape.

Perhaps the greatest incentive to make use of word processing for documentation was the knowledge that more professional, more highly structured and accurate documents could be produced with the embryonic tools available. This discovery was also the process of generating a broad acceptance of word processing.

Then, as now, word processing was used for many peripheral activities such as the production of newsletters and guides for car treasure hunts. People began to improve upon the rudimentary tools available. Word processing for the masses was on its way.

Consider in its wildest sense, creative writing and its relation to word processing: modern society demands that any material of note should not exist in handwritten form, and until the advent of word processing the typewriter was the accepted means of producing documents, either as the final copy or as a prelude to printing.

To the already varied number of routes via which printed matter comes into being has been added those involving word processing. The occasional user will prefer to prepare a longhand draft. Journalists and others with access to professional systems would no doubt prefer to tap in their creative outpouring directly at the keyboard.

No doubt with practice this latter process comes quite naturally, and is no more than a slight extension of using a typewriter directly, with no longhand copy. Or is it?

The typewriter and the word processor are not identical creative environments. The very act of typing something with paper and ribbon, as it is intended to appear, provides a sense of discipline which is not present with the word processor where things can always be changed round afterwards.

In terms of technical development and social implications, word processing is still in its infancy. The cycle of word processing and computer typesetting is already possible within the Unix operating system in simple indica-

tive of the way ahead for this front of innovations.

Already packages are appearing which allow for the deficiencies of operators. Time will surely tell if the user cannot call to mind an alternative phrase or even the computer will be able to provide one.

How long will it be before the book "written" by a computer suddenly thrust upon us is a sight? Far-fetched?

Reflect on the popular market - the "Gothic" or "dickie Ripper". The public generally aware that most offerings have a style mapped out by the publisher, how should he be surprised if the computer should meet the hero in its chapter. He should be.

WE'RE CONSIDERING A TORN COPY



authority. The length and between 50,000 and 60,000 in 111 chapters, etc, etc.

There is no doubt that word processing can lead to the production of superior material, but it is not necessarily correct to say that the word processor should go back over the material to correct superfluous words or to correct over-used ideas placed on paragraphs added, etc, etc.

It is often more productive to take away a hard copy, make a note and pore over it in quiet moments. Thus instead of endless paper, more can be generated.

There is also the temptation to keep teaching up the dross, an additional common error, a word there, so that the quality of the world is better than what would be produced with conventional methods, it may take time to produce in real terms.

In all of this, it is the operator who is successfully trained, the labyrinth of codes, output formats and word processing packages. This may be the competent secretary who regularly, it is not, however, that the operator will ever master all the subtleties of a major package.

There is no doubt that word processing allows text to be written with greater accuracy and with greater ease. It is not, however, that the operator will ever master all the subtleties of a major package.

For further details contact Ollie Rossiter, publicity manager (01-486 8377).

PEOPLE



F International strengthens team

F INTERNATIONAL announces four senior management appointments:

Jenny Williams (above left) has been promoted to Western region manager designate. F International. Previously sales and marketing manager, she has worked within the region for the past 10 years. Earlier this year the region, operating from a sales office in Bicester, Oxfordshire, won F International an ICP Million Dollar Software Seller Award, having achieved a record regional turnover of £1.6 million on 1982.

Jo Connell (above right) becomes Southern region manager designate. She has worked in the region for the past 6 1/2 years as both sales and account manager, and was previously responsible for technical development in the region. Earlier this year she was featured in BBC/TV's "Dahrendorf on Britain" series when F International's innovative home-based work method was the key subject of a programme on alternative employment patterns.



Jennifer Benyon-Tinker (below left) who is appointed as Science and Engineering Manager of F International's new Science and Engineering Division joined the company in 1977. As F International account manager she was previously responsible for a number of major accounts for such leading organisations as British Aerospace and Unilever Research Laboratories.

Appointed UK Financial Controller is Robert Arrowsmith (below right). Since joining F International in 1982 his main task has been the computerisation of the company's Accounts Department to provide a fully automated accounting service.



DIARY

SEPTEMBER 22-23
Data Facility Products is a Xephon course at the Royal Kensington Hotel, London, costing £370. Details: Mary Haines, (0628) 74922.

SEPTEMBER 22-23 or 29-30
Two more seminar/workshops are being held on Interactive Video in Action. Run by Future Media, they cost £275 each. Details: Future Media, (0243) 867811.

SEPTEMBER 26
Introduction to d/BASE II is a course run by the Computer Training and Education Centre at its London centre. Other courses in September are Z80/8080 Assembly, Programming in d/BASE II, and CP/M80 Operator Level. Details: Richard Lee, 01-251 4010.

SEPTEMBER 26-30
Data Analysis Workshop by BIS Applied Systems takes place at Queens Hotel, Eastbourne. It is designed for members of data processing and user departments on projects with complex data relationships, and will train in new methods of analysis and design. Cost is £630. Details from Cherry Bignmore, 01-261 9237.

SEPTEMBER 26-28
Minis/micros with IBM mainframes is being held by Xephon at the Waldorf Hotel, London, price £490. Details: Mary Haines, (0628) 74922.

SEPTEMBER 26-28
Office Automation and Integrated Information Processing Support Systems is a Frost & Sullivan seminar to be held at the Cumberland Hotel, London. Fee is £425. Details: Carolyn Budd, 01-486 0334/5.

SEPTEMBER 26-28
Software Maintenance, a seminar held by Management & Training Services, takes place in London. Details: David Peters, (07842) 57373.

SEPTEMBER 26-30
The Pascal Workshop is run by the Control Data Institute, in London. Further information: Jackie Borsley, 01-637 2171.

SEPTEMBER 26-OCTOBER 14
Datavolve's ANS Cobol Programming Workshop takes place at the Education Centre, London. Cost is £760. Details: Joan Clarke, 01-499 7099.

SEPTEMBER 27-29
Data Communications and Networks is a seminar run by Control Data in London. Cost is £345. Details: Sylvia Lyons, 01-240 3400.

SEPTEMBER 29
Intel iAPX432 specialist, High Integrity Systems, is to hold a one-day seminar at the Excel Hotel, Heathrow. Further details from Carolyn Jones. Tel: 0279-725030.

SEPTEMBER 29
The International Information Management Congress (IMC) conference and exposition, to be held in San Francisco from November 14-17, will feature topics for information managers. Under the theme "The Challenge of Change - Information Management, IMC '83 will provide a variety of integrated educational sessions on unified total information-handling systems. Special emphasis will be placed on document storage, retrieval, and distribution using computer-aided graphics, electronic mail, word processors, etc. For further details contact Ollie Rossiter, publicity manager (01-486 8377).

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Roger Dence, previously of market development and product planning for STC Defence Systems, has joined Charles Barker Lyons to head its recently-formed Technology and Industry Division. Dence has held a number of marketing, advertising and public relations positions with STC, and worked previously as Press officer for ITT Components Group Europe and the Institution of Electrical Engineers.

Appointed commercial systems director for Point Of Sale Services (POSS), Bib Hance was previously senior systems consultant. His new duties will include consolidating POSS' growing commercial user base.

Helen McKenzie has moved to CMG Information Services, Southern Ireland, to take up a new appointment as a business application consultant. She first joined CMG in 1978 when she worked at CMG Information Services City as a customer accounts supervisor.

Raiyo Shroff has been promoted to UK manager for Informatics (UK), the software products marketing arm of Informatics General Corp. Shroff joined Informatics in January from a computing career that has included 12 years in sales and executive education with IBM and 18 months running his own microcomputer company.

Mike Beer has been appointed managing director of OCC Computer Personnel (Southern). In the six years prior to joining OCC he held various senior management positions with Marcol Computer Services, latterly becoming overall director of operations.

Digital Microsystems is expanding its sales organisation and Ray Jose (above) has been appointed field sales manager responsible for national accounts throughout the UK. He joined IBM as a programmer and later worked as a systems analyst. After six years with IBM, he joined Guardian Royal Exchange where he worked on systems analysis and then became a project manager.

Pete & Pam Computers has added to the strength of its technical sales support department at its London office. Paul Hammond joins from Kingston Polytechnic, where he obtained a BA Hons in Business Studies.

David Cooper has joined Redifusion Computers as manufacturing co-ordinator manager, based at its headquarters in Crawley, Sussex. Cooper previously spent 18 years with Singer (UK), commencing his career there as a prototype wireman and finally being promoted to production services manager. Also joining Redifusion is Keith Allen, as sales manager for the motor and chemical industry within the commercial and industrial sector, based in London. Since 1981 Allen has worked as a sales executive for Allied Business Systems.

London. Details: David Peters, (07842) 57373.

SEPTEMBER 26-30
The Pascal Workshop is run by the Control Data Institute, in London. Further information: Jackie Borsley, 01-637 2171.

SEPTEMBER 26-OCTOBER 14
Datavolve's ANS Cobol Programming Workshop takes place at the Education Centre, London. Cost is £760. Details: Joan Clarke, 01-499 7099.

SEPTEMBER 27-29
Data Communications and Networks is a seminar run by Control Data in London. Cost is £345. Details: Sylvia Lyons, 01-240 3400.

SEPTEMBER 29
Intel iAPX432 specialist, High Integrity Systems, is to hold a one-day seminar at the Excel Hotel, Heathrow. Further details from Carolyn Jones. Tel: 0279-725030.

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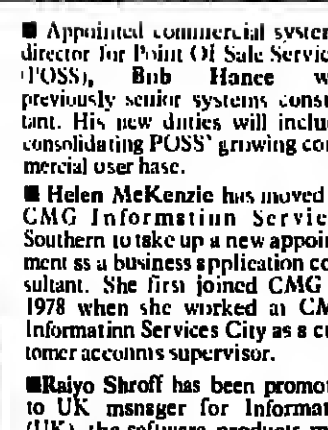
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Adrian Preston has joined Alpha-Abus, the Alpha Micro based software house, as senior systems programmer. He joins from ASS where he was responsible for operating systems development.

Zilog (UK) has appointed David Hussey as Southern region sales manager. Prior to joining Zilog, he was with Crelion Microsystems 1981-83 as field applications engineer.

Sean Lacer has appointed a new technical director, John Escott, following the successful launch of Syntex, a desk-top publishing system. Lacer who has 15 years experience in systems engineering and language support roles, will be responsible for initiating and controlling future software developments in the rapidly expanding field of electronic printing with merged graphics.

A number of recruits have joined Pinpoint Analysis, the new Waterloo-based computer services company. The team of Upi Patel, Bernie Enlander and Kathy Brooks is responsible for supporting SIR/DBMS, for which Pinpoint has been appointed UK marketing agent. Geoff McHugh has joined the company to head its financial modelling activities, while Margaret Battima will be responsible for its project planning systems. Steve Howard has joined the applications development team. All previously worked for SIA Computer Services.

MDS Computer Systems (UK) announces the appointment of Gareth Evans as director of sales. He joins from MDS Canada where he has been responsible for sales in the Eastern provinces for the last four years.

Tandon International has appointed Chris Robbison as UK sales manager. Until recently he was regional sales manager for Qume and prior to that lived in Belgium, where he was European disc drive specialist for Ampex.

Chris de Wet (above) has joined Peachtree as project leader for the Peachtree business management systems. He has returned to the UK after nine years in South Africa. For the past two years he has been in Durban as software manager of Brum Business Machines, before which he was senior analyst/programmer at Shell South Africa.

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COMPUTER WEEKLY/IDC EXPENDITURE SURVEY

TABLE 1: BREAKDOWN OF DATA PROCESSING EXPENDITURE IN THE UK BY CATEGORY 1982

	£M	Share of total
Hardware	2020	32%
Software and services	977	15%
Data processing supplies	304	5%
Telecommunication charges	120	2%
Data processing staff salaries	2641	41%
Internal overheads	301	5%
Total	6363	100%

TABLE 4: SOFTWARE AND SERVICES EXPENDITURE BY DATA PROCESSING DEPARTMENTS

	£M	Share of total
Package software	289	53%
Custom software/consultancy	118	21%
Processing services	105	19%
Training, etc.	40	7%
Total	552	100%

TABLE 5: WHERE VARIOUS SOFTWARE PRODUCTS AND SERVICES ARE ACQUIRED

	Hardware Vendor	Independent Vendor
Systems/utilities	80%	20%
Applications	37%	63%
Custom Software/Consultancy		
Systems/utilities	83%	17%
Applications	5%	95%

TABLE 6: DATA PROCESSING STAFFS' TIME SPENT ON DIFFERENT APPLICATION AREAS

	Share of total
Payroll/Personnel	11%
General Accounting	12%
Industry Specific	21%
Other Business/Commercial	24%
Other Technical/Scientific	7%
System/Utility Software	14%
Other	11%
Total	100%

TABLE 7: AVERAGE EXPENDITURE IN DIFFERENT SIZES OF DATA PROCESSING DEPARTMENT

Data Processing Department	Typical DP Expenditure £1m-£4m
Large GPC Departments	
Smaller GPC/Larger Minicomputer Departments	£200K-£500K
Smaller Mini/Small Business Machine Departments	£80K-£200K
Very Small Business Machines/Microcomputer Departments	Under £10K-£30K

TABLE 8: DISTRIBUTION OF EXPENDITURE IN DIFFERENT DP DEPARTMENTS

	% of Dept.	Typical No. of DP Staff	% of Expenditure
Large GPC Department	3%	40+	37%
Small GPC/Mini Department	17%	10-25	35%
Small Mini/Business Machine Department	26%	4-8	20%
Very Small Business Machine/Micro Department	54%	None	8%

TABLE 9: DP EXPENDITURE BY DIFFERENT INDUSTRY SECTORS

	Share of GNP	Share of DP Expenditure	Ratio
Retail/distribution	9%	11%	1.2
Finance/insurance	10%	14%	1.40
Transport/utilities	11%	6%	0.55
Services	14%	19%	1.36
Agriculture/mining/construction	15%	2%	0.13
Government	16%	22%	1.38
Manufacturing	25%	26%	1.04

TABLE 10: % OF ESTABLISHMENTS WITH A COMPUTER (EMPLOYING MORE THAN 20 PEOPLE)

	Penetration Rate
Retail/distribution	20%
Finance/insurance	53%
Transport/utilities	24%
Services	35%
Agriculture/mining/construction	12%
Government	40%
Manufacturing	37%
Average	31%

TABLE 11: TOP 10 DP VENDORS' REVENUES* IN THE UK 1982

	£M	Market Share
1. IBM	718	22%
2. ICL	412	13%
3. Burroughs	210	7%
4. DEC	173	5%
5. CDC	101	3%
6. HIS	92	3%
7. NCR	78	2%
8. Hewlett-Packard	77	2%
9. Sperry	45	1%
10. Wang	45	1%
Top 10 vendors	2017	61%
Next top 90 vendors	890	27%
Remaining 2900 vendors (approx.)	394	12%
Total	3501	100%

*Revenue generated within country, excludes export earnings.

Computer Weekly and the International Data Corp have combined to present a regular survey on trends within the UK data processing industry. This week we present the first of these surveys, which takes a global view of expenditure at some 38,000 computer sites in the UK.

In subsequent months the survey will look at individual industry sectors. The first of these, to be published in November, will focus on the engineering manufacturing industry, to be followed by other manufacturing, finance, insurance

and banking, retail and wholesale distribution services, and government.

The objective of the surveys is to give users of computer equipment and services an indication of how they stack up against the remainder of the industry. The data for the survey comes from professional market research, with a high input of information from users interviewed at their sites.

The culmination of the market research will be used in a major conference

scheduled for February 7 and 8, 1984, at the Royal Lancaster Hotel in London. The conference, sponsored by Computer Weekly and the National Computer Centre, in association with IDC, will contain essential planning information, information systems and services managers and general management have responsibility for computer use (full details on page 2).

Mike Reilly, senior consultant at the research,

UK spends 2.8% of national product on DP — a high European rate

There are about 38,000 computer sites in the United Kingdom and between them they spent some £6,363 million on data processing in 1982. That volume of money may seem to the reader a bit staggering at first, but put in context it is about 2.8% of the UK's gross national product.

Putting it another way, the typical company in the UK spends that percentage of its turnover on data processing — a benchmark by which readers may wish to measure their own company.

That 2.8% is high by European standards, which shows that data processing is one area in which the UK can hold its head high.

Table 1 shows what went to make up that £6,363 million. The biggest slice went to staff salaries.

The total bill for staff was £2,641 million, or 41% of total DP expenditure. IDC estimates that the total number of people employed in user data processing departments in the UK was some 300,000 in 1982 which gives them an average salary of £8,800.

This figure is, of course, a very general average over many occupations and levels of seniority within the data processing profession. It should not be seen as a norm for any one particular group of people.

The next biggest item on data processing expenditure was on computer equipment, or hardware. The total bill in this area for 1982 stood at £2,020 million, or 32% of total user expenditure.

It is interesting to take a closer look at the breakdown of the hardware figures. The details are shown in Tables 2 and 3. In terms of expenditure, by far the biggest item of expenditure was on large computers priced at over £300,000. They accounted for 47% of the market in terms of expenditure. But in terms of the number of computers acquired by users, they represent about 1% of the market share.

At the other end of the scale, small computers under £5,000 in value, mainly microcomputers, formed 85% of all computers acquired but only 13% of actual money spent on computers.

These two sets of contrasting figures illustrate the substantial dichotomy in the hardware market today.

The UK spends more on microcomputers than any other European country. Of the 260,000 microcomputers acquired in Europe in 1982 some 31% were acquired in the UK.

Looking slightly ahead IDC said that those two extremes of the hardware market, very small systems and very large ones, as the two markets which will be growing fastest.

At the bottom end of the market there will be substantial growth, as more and more smaller companies and departments in large organisations acquire their own microcomputers, and at the other end of the scale, centralised data processing departments will be

acquiring larger machines, often to service end user departments in a communications environment. This will particularly be true as office automation is implemented in more and more companies in the 1980s.

There has been a lot of talk in the DP industry lately of the "software revolution". What with the fall in hardware prices and rising demand for computer packages, particularly user-friendly ones, for a whole host of business and technical applications, some people in the industry have been forecasting the time that software products and services will soon be the major component of data processing expenditure, and that hardware would be relatively inexpensive.

But from Table 1 it can be seen that this situation has not yet materialised. The level of user expenditure on software products and services in the UK in 1982 was

1. Many smaller companies do not have an internal data processing department and rely on an outside data processing service to carry out standard computer runs such as payroll, standard accounting and invoicing for them.

2. There are many specialised departments in larger organisations requiring special types of analysis, often of a mathematical nature, which use the services of an outside specialised service bureau or which have specialised systems developed for them by outside systems houses. These departments tend to pay for such services from their own budgets.

3. A third category of user, which is becoming increasingly important, is the end-user department that has acquired its own computer and has also purchased specialised software packages to run on it. This situation applies not only to the end user depart-

ment. Table 5 summarises this.

In broad terms users who system utility software to vendor who provided the in the first place. On the other hand they tend to go to independent vendors for applications.

Hardware vendors of substantial system packages have much less specific writing industry specific systems. On the other hand independent vendors are developing specific systems.

Related to expenditure on external software and services is the expenditure on day staff. This figure stood at £2,641 million, or 41% of total DP expenditure. IDC estimates that the total number of people employed in user data processing departments in the UK was some 300,000 in 1982 which gives them an average salary of £8,800.

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COMPUTER WEEKLY/IDC EXPENDITURE SURVEY

Top 10 vendors earn 60% of all DP revenues

From page 18

more into a distributed data processing environment and as office automation starts to take off. As a result by 1990 we expect users to be spending nearer 6% of their budgets in this area than the current 2%.

One encouraging feature in the UK is the relatively advanced state of data communications compared to other European countries. Users in the UK spend, on average, twice as much of their budgets in this area as data processing departments in other European countries and IDC expects this pre-eminent position to be maintained for the foreseeable future.

The last remaining item of data processing expenditure by DP departments is on data processing supplies. This includes expenditure on such items as tape reels, disc packs, floppy discs as well as computer forms, cards, ribbon etc. Something like 5% of DP budgets for 1982 was spent in this area.

IDC does not see any dramatic changes in that percentage over the next few years — one area, floppy discs, being the exception, where there will be quite a high growth to correspond to the high growth in the microcomputer area as a whole.

There is a quotation from George Orwell's *Animal Farm* which says "All men are equal but some are more equal than others." The same applies to data processing departments and their levels of DP expenditure.

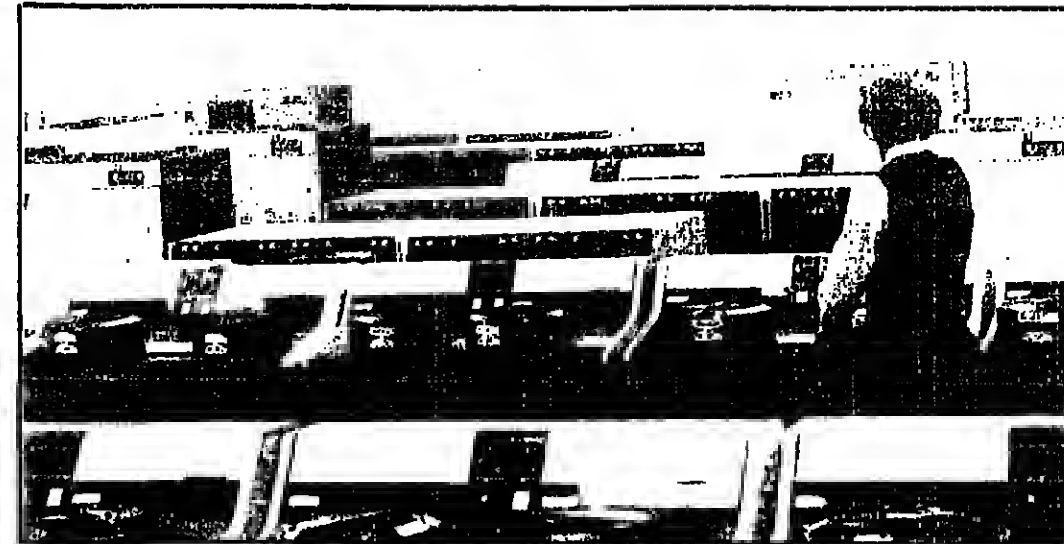
In the case of expenditure, every data processing department is different.

Just as hardware expenditure is very skewed towards the high end of the market, so is data processing expenditure skewed towards data processing departments with those larger machines installed.

IDC has divided data processing departments into four different categories for this survey.

Category 1 comprises data processing departments where there is at least a large general purpose computer installed, ie a computer equal to or larger than an IBM 4341 Model 2. There are also probably four or more other computer types installed within the department. The department also must likely employ more than 40 data processing staff. Such a department would have a total data processing budget of the order of £1m-£4m. These data processing departments comprise only 3% of all data processing departments in the country. Between them, however, they spend almost 37% of the country's total data processing expenditure (See Tables 7 and 8).

Category 2 comprises data processing departments where there is a smaller general purpose computer installed such as an IBM 4331 or a larger minicomputer such as a DEC Vax. The department would probably also have one or two smaller computers installed. They would also probably have a DP staff of 10 to 25. Such a department would have a data processing budget of between £200K-£500K. These departments make up 17% of all DP depart-



ments in the country and between them they spend approximately 35% of the country's total DP expenditure.

If we add Categories 1 and 2 together we arrive at the figure of 20% of DP departments spending 72% of all data processing expenditure, which is quite close to the classical 80/20 rule for spending distribution among consumers — 80% of expenditure made by 20% of buyers.

Category 3 comprises data processing departments which have a small minicomputer, eg a PDP 11/44 or a business machine such as a Wang VS installed. They may also have one other smaller machine as well. They typically employ a DP staff of four to eight and their annual DP expenditure is between £80K-£20K. There are about 10,000 such DP departments in the UK, and they are the nearest group to the "average" data processing departments in the country, if such a term is meaningful in such a diverse market. They form 26% of all data processing departments and spend 20% of the UK's total DP budget.

Category 4 is by far the largest group of computer sites, comprising over 50% of all sites in the country. These are those which

have only a very small business machine such as a System 500 or a microcomputer installed. In many cases they do not have a professional full-time data processing department, the normal office staff operating the computer if and when required. Their data processing budget, including a proportion of staff costs, would most likely range from under £10K to £30K. Between them they only spend some 8% of the total UK's DP budgets.

Yet another way of looking at data processing expenditure is from an industry point of view. This highlights certain interesting differences between different industry sectors. Table 9 ranks seven different industry sectors according to their relative size in the UK economy, ie their % contribution to the gross national product.

It is clear from the table that certain industry sectors spend a greater proportion of their resources on data processing than others. The finance and insurance sector, for instance, spends the most on data processing in relation to its total resources while the agriculture/mining and construction sector spends least.

Table 10 shows the percentage of establishments, employing more

than 20 people, that have a computer in each industry sector. Again the finance and insurance sector comes out on top.

The average penetration rate across industry sector is 31%.

Let's turn now to the vendors in the UK who actually provide the data processing and end-user DP products and services. There are about 3,000 such vendors in the UK.

Excluding telecommunications charges in British Telecom these 3,000 companies between them earned the £3,031 million spent by users on hardware, software and services and data processing supplies combined.

It is interesting to note, however, that the top 10 data processing vendors alone earned between them a staggering 61% of that money. The number 1 vendor, IBM, by itself earned 22% of the revenues, a substantial market position by any standards. The other top nine vendors earned between them another 39% of total data processing revenues.

IDC estimates that the next 90 top vendors, both hardware vendors and software and services vendors, earned another 27% of the DP expenditure between

them. That leaves 1,994 million or 12% of the revenue for the remaining 2,900 or so vendors in the DP industry — a relatively small market share.

However, it gives them a not inconsiderable average turnover per annum of £136,000. See Table 11 for a summary of vendors' market share.

One can perhaps now summarise the current pattern of data processing expenditure in the UK in the following way.

Expenditure on data processing staff is still the predominant item of expenditure by DP departments.

Hardware is still much larger an expenditure item than software and services and is expected to remain so for some time to come.

Expenditure on hardware is still skewed very much towards larger computers with expenditure on microcomputer forming as yet, only a small proportion of the market.

However, the UK is well advanced in the use of microcomputers compared to the rest of Europe.

The UK is also well advanced in data communications compared with the rest of Europe.

Almost half of the expenditure on external software and services is not under the control of centralised data processing departments but spent by end-user departments and companies without a computer of their own.

Data processing expenditure is highly skewed towards larger sites with the top 3% of DP departments spending 37% of the UK's total DP budget.

Finally the top DP vendors have a very dominant position in the marketplace. The top 10 vendors earn between them over 60% of all data processing revenues while at the bottom end some 2,900 vendors earn only 12%.

IDC Europe, 2 Bath Road, London W4 1133. Tel: 01-895 9222.

AUTUMN SOFTWARE FORUM - AGENDA

DAY 1 Technology Update

Morning

- * Overview/Introduction
- * Advances in 16-bit Operating Systems

CP/M Plus

- * Concurrent CP/M Technology
- * Structure and Mechanisms
- * Networking
- * Advances in the User Interface
- * VIP (Visual Interface Processor)
- * Demonstrations

DAY 2 Tutorials

Morning

- * Designing for the Concurrent Environment
- * How to Write Software to Run in Concurrent Environment
- * Process Management
- * Window Management
- * OS Portability Issues

Workshop 1

- * Using Graphics Extensions
- * CBASIC Graphics
- * C Programming Language

Workshop 2

- * Languages and Graphics
- * Using Graphics Extensions
- * CBASIC Graphics
- * C Programming Language

Workshop 3

- * Consumer Software
- * The Logo Language
- * Personal BASIC
- * Personal CP/M
- * VIP

Workshop 4

- * Productivity Tools
- * Display Manager
- * Access Manager
- * Examples

Please supply tickets for Day 1 - Technology Update (£30 + £3 VAT each) - Total £

Please supply tickets for Day 2 - Tutorials (£30 + £3 VAT each) - Total £

Date _____ (For Post) The additional tickets are for _____

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the Creators of CP/M

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Autumn

Software Forum

October 17 and October 18, 1983 Cafe Royal, London

As a follow-up to our outstandingly successful ISV Forum in April, Digital Research, the world's leader in microcomputer system software, is holding a major software forum on 17th and 18th October 1983 in London. We feel it is vital for software suppliers and equipment manufacturers to get up-to-date training in the rapidly changing personal computer software industry as new and enhanced products are introduced. We have structured our two-day programme in line with your suggestions — offering a one-day seminar giving a broad update on key system software developments, followed by a second day of "mini-workshops" at which we can provide design level training. You will be able to go in either or both days to match your own interests.

We plan to focus our discussions on three key areas:

- * Developments in software technology — particularly in the area of operating systems where concurrency, windowing techniques and networking can be exploited.
- * Strategies for portability in languages, graphics and user interface.
- * Methodology in programmed productivity both in tools and techniques.

We feel this forum will be of great value both to Independent Software Vendors and Personal Computer equipment manufacturers.

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You may choose to attend either day or both days of our Autumn Software Forum.

Day 1 - Technology Update

This day will provide a full overview of developments in personal computer system software from Digital Research. This session is a must for those wanting to keep abreast of trends and developments in this area.

Day 2 - Product Tutorials

We will hold four tutorials on the second day of our forum. An attendee can choose to go to two of these sessions. The tutorials will consist of an in-depth technical session describing product use and facility. These sessions will be of great value to designers and programmers.

Price for attendance on each day is £60 plus VAT, which includes lunch and handout materials.

Year	Revenue	Profit	Assets	Liabilities	Equity
1977	1,000	100	1,000	100	900
1978	1,200	120	1,200	120	1,080
1979	1,500	150	1,500	150	1,350
1980	1,800	180	1,800	180	1,620
1981	2,000	200	2,000	200	1,800
1982	2,200	220	2,200	220	1,980

COMPANY PROFILE

As well as being the world's largest computer manufacturer, IBM is the largest mainframe maker, the largest software supplier, the largest small-to-medium

systems supplier, the largest peripherals manufacturer and the largest chip manufacturer.

IBM is big. It is the largest commercial ph-

nomenon of the second half of the 20th century and, in profit terms, is the second largest company in the world.

Computer Weekly reports on aspects of IBM

in this special feature. Here, Kevan Pearson examines IBM's position and the forthcoming battle of the giants - IBM, AT&T.

IBM—not simply a computer manufacturer, a way of life

WHAT IS IBM? The answer is not as simple as the question. IBM is not just the world's largest computer manufacturer. It is the largest mainframe maker; the largest software supplier; the largest small-to-medium systems supplier; the largest peripherals manufacturer and the largest chip manufacturer. And, by the end of 1983, it will be the largest microcomputer supplier.

In 1982 it was, in sales terms, the eighth largest company in the world; the second biggest in profit terms and the largest in terms of return on sales.

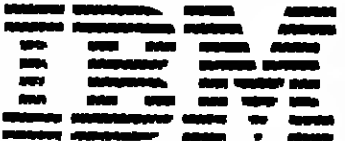
In the computer market in 1982, it was eight and a half times bigger than its nearest rival - Digital Equipment. In fact, IBM grows by one DEC a year. Sales in 1982 were \$34.4 billion and are expected to reach \$40 billion in 1983. IBM is the commercial phenomenon of the second half of the 20th century. It did not make its first computer until 1952, a year or so after one or two of its early rivals. But, since then, it has all but dominated the information technology industry.

In 1983 it probably has a higher share of the mainframe computer market than ever before and, although this share is difficult to estimate, because IBM does not release market share information or even quote the number of systems it has sold, the figure is thought to be between 70 and 80%.

The total market is very different from the market when the 370 series was launched in 1970. Few then would have predicted the rise of the minicomputer, or the prominence since achieved by DEC, Hewlett-Packard and others. And virtually no one anticipated

the micro let alone its sale in millions. As the market grew beyond the confines of the conventional mainframe, IBM missed the boat.

The company all but ignored the rise of the minicomputer, much to its cost, and even today it has only a very small presence in that market. And it took five years to respond to micro giants Apple, Commodore and Tandy, though its response to the micro invasion was



IBM is active in almost every area of the computer industry, and, where it doesn't have a product or service itself, it is prepared to buy one in.

more successful than its attempt to stem the mini tide.

As a result, IBM now controls only about 40% of the information technology market, and almost every move it makes is directed towards consolidating and where possible strengthening its grip.

One such move was the announcement on February 8, 1983 that the provision of source code on certain software products would be restricted. Other computer manufacturers, such as DEC,

Sperry and ICL, have had a similar policy for years, but IBM has not had such a policy before and there are very healthy third party software and hardware industries effectively riding on its back. These industries are beginning to feel increasingly vulnerable, given IBM's more aggressive stance.

Freed from the immediate threat of anti-trust legislation, IBM is now on a healthy product life cycle in several areas and, having realised that its grip on the market has slipped, it is taking action to strengthen that grip. It is active in almost every area of the computer industry, and, where it doesn't have a product or service itself, it is prepared to buy one in, or enter a joint venture with a successful supplier (eg Rolm in the telecommunications market).

It would have been unheard of two years ago to see IBM invest in another company. It has now done so twice, and probably will again.

These link-ups are no more than another string to IBM's fiddle, for, although the company might shy away from the word domination, there are few doubts outside IBM (and probably even fewer inside it) that domination is what IBM is bidding for.

Control is the essence of IBM's policy and it is pursuing control through various means: its efforts on standards committees the world over; the promulgation of its own standard; and its links with other companies that enforce the *de facto* standards of the IBM world.

System Network Architecture (SNA) is a notable example, supported by almost every important firm in the data processing world, from DEC, Sperry, Wang and ICL to the makers of the humble micro that can perform as SNA terminals.

Control of the still bigly profitable information technology industry will enable IBM to meet its major objective: the maximisation of its shareholders' earnings power and wealth. Within the last 12 months the value of IBM's shares has doubled, from just under \$60 a share to over \$120.

It is clear, then, that IBM is a different company from what it was two years ago. Then, it had only just launched its Personal Computer in the US; it was still split into two major business divisions - Data Processing for mainframes and General Business for small and medium systems and office products - and it was still defending itself to the largest, most comprehensive anti-trust (monopoly) case.

Within six months or so, from summer 1981 to January 1982, there was a complete change in direction on major and minor issues.

The dropping of the anti-trust case must be a major factor behind IBM's new found aggressiveness (another word the company does not like), though John P. Opel, the present chief executive, denies it. To the eyes of IBM's major competitors - the plug-compatible hardware suppliers and the compatible software companies - IBM has certainly become a lot more active in the market in several areas it had not been active in before. Price cutting is one of the major changes. IBM is now the more willing to do deals than ever



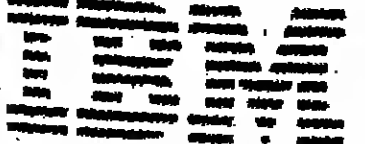
before, which has been welcomed by users but is a major source of irritation to competitors.

IBM is also much more ready to respond to new opportunities. Since the late 1970s it has been pursuing a policy of pushing users towards the outright purchase of equipment rather than renting. This is a complete reversal of company policy. When IBM first started producing computers you couldn't buy one, you could only rent one. Today, some (8100s for example) are for purchase only.

This has freed IBM from the financial constraints of financing its rental business, and has lifted a considerable burden from IBM's corporate shoulders. In the mid-1970s well over half of IBM built computers were owned by IBM and rented out to users. One recent study in the US claims that over 80% of 308x mainframes are sold outright, which is a major cash boost to 308x hardware costs from £200,000 to £2.5 million.

This enables IBM to launch new models without worrying about the effects on assets tied up in rentals, and this should result in shorter product life cycles. The 360 range, announced in 1964, lasted six years; the 370 seven years; the 3035 four years. The 1980, expected to have an even shorter life, though major would November 1980, was a 308x machine that ran the first

real 308x was the 3081K announced a year later. Either way, the replacement Sierra/Trout series is expected to be announced in 1984. An effective three or four year life cycle spells problems for IBM's competitors and its users, as the machines they are spending anything from £1 million upwards on today will be out of date in under two years if the industry expects



Within the last 12 months the value of IBM's shares has doubled, from just under \$60 a share to \$120

tion about the Sierra's launch date is accurate. Behind these changes in the way IBM now operates lies a change in the hand on the corporate tiller. At of January 1981 John Opel succeeded Frank Cary as IBM's chief executive.

COMPANY PROFILE

Year	Revenue	Profit	Assets	Liabilities	Equity
1977	1,000	100	1,000	100	900
1978	1,200	120	1,200	120	1,080
1979	1,500	150	1,500	150	1,350
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1981	2,000	200	2,000	200	1,800
1982	2,200	220	2,200	220	1,980

Continued from page 20

mated the demand for the 43xx series announced in 1979. Industry analysts put first-day orders at 50,000. Underestimating the demand, and underpricing the product are two of the most widely cited reasons for IBM's very flat profit growth between 1979 and 1982. In that period, for the first time in the company's history, its profits actually dropped in real terms.

Second, the 3380 disc drive was launched and withdrawn due to technical and production problems and finally came to the market a year late. The problems alone cost

IBM, with typical conservatism, totally underestimated the demand for the 4300 series announced in 1979

IBM dearly. The lost business to competitors, such as Memorex and Storage Technology cost just as much, if not more, than the cost of the machine itself.

In product terms IBM became the company it is today with the momentous launch, in 1964, of the 360 series (or System 360, to give it its IBM nomenclature). This was the first fully upwards compatible series of computers spanning all the available power ratings. Prior to this IBM had sold two ranges of computers, the 1400 series for medium range data processing and the 7000 series, to top of the line computing. The 7000 series was the first range of IBM machines to use solid state technology. It was launched in 1960.

The 360 series spanned a range from the lowly model 20 to the

supercomputer models 67 and 95. The 90s models in the 360 series were the subject of one of the few successful private anti-trust cases to be brought against the company.

Control Data, then as now, a major supplier of scientific supercomputers, alleged that IBM announced one of the 360/90 machines purely as a ploy to hurt CDC and that IBM had no intention of ever supplying the machine.

IBM denied the allegations. The court found in CDC's favour, and awarded triple damages. IBM did actually deliver its alleged paper or knock-out 360 system, albeit at very great cost and after much delay, and in very small numbers.

The practice of announcing a product over to be delivered but merely to knock out the competition originated, or was refined to a fine art, in National Cash Register, before the first war. Tom Watson, IBM's founder, was a senior man at NCR, prior to the government anti-trust case in which Watson and the rest of the NCR board were named.

Mud socks and IBM was, on many occasions, accused of using similar knock-out, anti-competitive practices.

The anti-trust case, dropped in 1982, was not the only case the government made against IBM. An earlier, much less comprehensive, case ended in 1956 with IBM entering into a consent decree with the government, defining its behaviour on certain points of business practice. This consent decree, according to William Rogers in his book *Think*, became the basis of IBM's business bible - the book of rules governing how salesmen should act in sales situations, lest IBM be once again called to account for its dominance in the computer market.

The 360 series set the trend which IBM follows even today with its mainframe range. As Gene

IBM -- not just a simple computer maker

Andahl, the chief architect of the 360 who went off to found Andahl Corporation, says: "IBM is the largest plug compatible supplier in the business." It can no more afford to move away from the development direction established with the 360 than it can afford to continue to give software away (with the 360 you bought the computer and the software was free, bundled in with the CPU).

There is only one indication that IBM ever tried, or thought about, moving off from this set course. That was with the so-called Future System, which was quickly, and unceremoniously dropped in the mid-1970s. It seems that the taste of FS was so bitter that all trace of it has been expunged from IBM's public records.

FS was meant to take IBM away from the 370 series, which in 1970 had replaced the 360, and move it into a new direction, one which the competition, in the shape of the Bunch (Burroughs, Univac, NCR, Control Data and Honeywell) and the nascent Andahl Corporation could not follow. The problem was IBM couldn't follow it either. But not all the FS research was wasted.

It is said to be the basis of System 38, and to have links with MVS/Extended Architecture, IBM's flagship operating regime.

No, apart from one expensive and unsuccessful detour outside the confines of the System/360/370/XA triad, IBM is trapped in the compatibility problem as are the plug-compatible suppliers. It has moved away in some areas, such as the extensions in Extended Architecture, but there is only one way compatibility

With the massive investment in 370 software and expertise IBM can only move so far at each step. And the steps it can take are constrained within fairly well defined parameters. What it is probably planning to do now is increase the rate of taking steps rather than the scale of change in each step.

This increases the strength of IBM's greatest weapon, first highlighted by Gene Andahl, after he had left to found Andahl. The weapon is FUD - fear, uncertainty and doubt. Can the competition match IBM's technology? Can the pcms maintain compatibility?

These questions are FUD questions. IBM does not ask them directly but the pcms claim there is a hit squad from IBM priming potential defectors from the IBM fold.

IBM could, if it so chose, put the entire pc hardware and third party software industries out of business within a year. It won't for several reasons. First, both indus-

The first point is valid; the second, more dubious. Andahl claims that it was able to predict over 90% of what XA would do before he saw a copy. Other pcms say the same. Of course they have a vested interest in saying this. But the facts bear out their suppositions, at least for most of the way.

Why should IBM want this level of control over the rest of the industry? The answer is simple: IBM does not want a fire in its own backyard when, in the not too distant future, it will be locked into the biggest marketing and technology battle that any business, in any country has ever seen.

The enemy will be American Telephone and Telegraph, but they won't be battling for the computer industry. The deregulated AT&T will leave that to IBM, just as IBM will leave the bulk of the international carrier business to AT&T. Where they will fight - tooth, claw and FUD - is in the grey and still undefined area between straight commercial data processing and conventional telecomms.

What IBM wants to do, quite simply, is control the rate at which these industries can grow, and to dictate the pastures in which they can grow.

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Kevan Pearson is editor of *The IBM System User*.

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The cosy world of the IBM user

IBM, with its annual turnover in the region of £23 billion, is an all embracing giant which permeates the whole of the information industry, from electronic typewriters to a 20 mips mainframe and from robotics to space satellites.

Its research and development budget is staggering. In 1982 it was \$2,053 million - as much as the five-year European Espirit and the five-year Alvey programmes put together. That reservoir, together with the confidence inspired by the name - a saying the company does not discourage is "no DP manager ever got fired for buying IBM" - has enabled the company to drag its feet in some areas and prod users in others, to its advantage.

The range of computer systems, from micro to mainframes, comprises a number of product groups. On entering one of these groups, users find it cosy while locked in to it, but when it comes to moving into another group they find they cannot always carry over applications, which creates a problem expensive to solve.

Since its launch six years ago the highly successful but ageing System 34 has proved itself the most successful small business system ever, with an estimated 60,000-90,000 sold worldwide, and an estimated 3,000 installed in the UK.

Although popular, System 34 has reached the end of its life. Many users were outgrowing it with no clear growth path. IBM tried pushing the System 38 as the successor, but encountered user resistance. This was not surprising, as the jump between the 34 and 38 is bigger than appears at first sight - a large system conversion from the 34 to the 38 could take up to a year to complete.

The recent launch of System 36, which had been awaited for two or three years, and which has only become available in the UK this month, provides an effective growth path, and goes a long way towards undermining competition from rival companies hoarding in on System 34 users with RPG compilers on their own machines. Wang had the most effective challenge, though it experienced severe handling problems with RPG.

System 36 incorporates many of the advantages of System 34, and can be plugged in with only a 13 amp plug. System 38 was announced with much drum beating, but before it had been properly developed. Consequently most users were, according to another recent Xephon survey, unhappy with slow response and inadequate back-up facilities.

However, the launch of System 38 Models 7 and 8 recently have doubled the performance, from an estimated 0.24 mips for the Model 7 to 0.52 for Models 7 and 8. The maximum memory size for the Model 7 is twice that of the Model 8, at 4 Mbytes, with that of the Model 8 being 8 Mbytes.

System 38 is often regarded by programmers as a "pig" to start with, but well liked once they get used to it. They like the program development aids and database software and improved communications that were announced earlier this year.

Turning to the mainframes, in

the last four years there has been a total revolution. IBM watcher Jack Hart of the International Data Corporation, points out that, in December 1979, 63% of the installed IBM mainframes in the US were 370 series, and 25% the earlier 360 series. The larger 3030 series comprised 10% while the then newly launched 4300 series was only 3%.

Projecting to the end of this year, Hart sees the total US user base for the 360 and 370 machines shrinking to 17%; the 3030 series remaining about constant at 8%; with the new top of the range 3080 series at 9% and the 4300 series top at 66%.

The 4300 series is essentially the old System 370 in design terms, supporting DOS, the architecture of which was laid down in the old

dable, with ease. A significant release has been a new operating system for this series, MVS/XA (extended architecture), which allows direct addressing of over 16 Mbytes of main memory.

In the small business area, there are two systems the user can use if he wants a strongly centralised host control or broad communications capability. These are the Series 1 minicomputer and the 8100 distributed data processing system. By contrast the System 34/36/38 would be used for decentralised control.

Both the Series 1 and the 8100 had been slowly sliding from view until they were brought back and revitalised this year. The Series 1 was launched seven years ago as a future-proof system, and earlier this summer was saved from the

The highly successful but ageing System 34 has proved itself to be the most successful small business system ever

batch oriented days of the 1960s.

There are two broad groups within the 4300 range. The first is the 4321 and 4331 series, which range in performance from 0.2-0.4 mips, million instructions per second, and support DOS operating systems. The second group is the 4341 series which ranges from 0.4 to 1.3 mips, and supports DOS and MVS operating systems.

Last October the 4341 was expanded upwards (the 1.6 mips 4341/12) and downwards (the new entry level 4341/9 at 0.4 mips). Jack Hart considered those announcements put "the last nail in the coffin for the 4331" and he predicts a new strategy developing in that lower end of the market.

There is a significant gap between the 4341 groups and the next group, the 3080 series, which ranges from 2.7 mips (the 3083E) to the 23 mips 3084. The plug compatible manufacturers have banded in on this. National Advanced Systems has its 2.4 mips AS/6650 and Amdahl its 2.7 mips 470V/7C.

The 3080 series, the first machine of which, the 3081/D, was announced late in 1980, has effectively rendered the old faithful 3033 mainframe series, launched in 1977, redundant. However, the 3033 refuses to lie down and die and there is a healthy secondhand market for it.

The 3083 series, confusingly named, as it is less powerful than the 3081 series, was launched in spring last year. Tom Frans, vice-president systems support of National Advanced Systems, sees another gap between the 3083/7 (7.9 mips) and 3081 Model G (11.4 mips) and believes that his firm's 9000 series provides the "broader range that the user market place with a 20-25% growth rate requires".

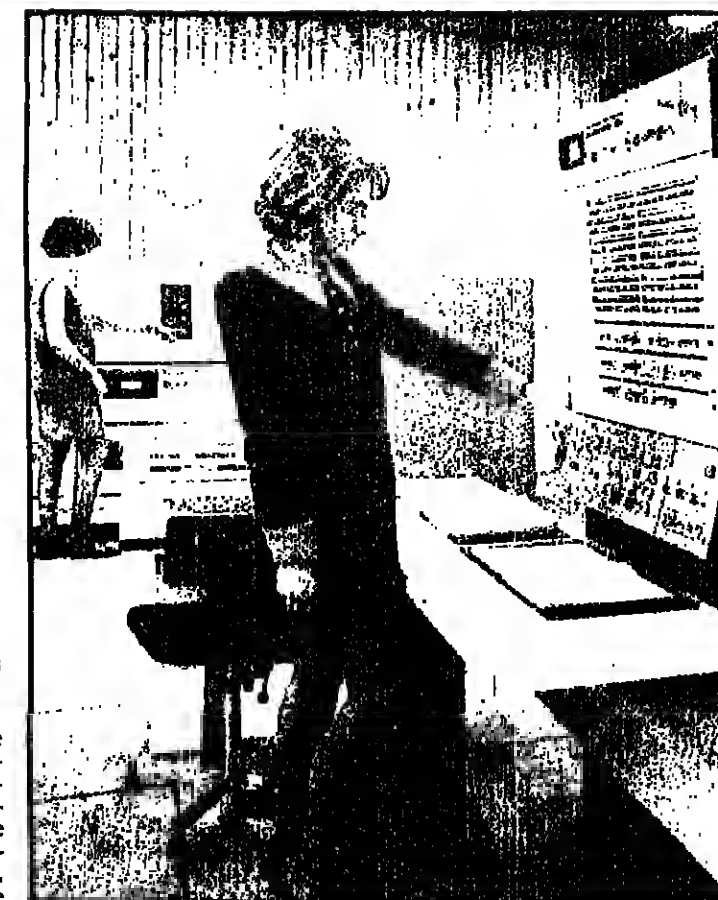
The top end 3084 (27 mips) is still faster than any plug compatible high-end offering, and Hart believes that IBM will fight to "remain a leader at the high end, wanting to offer the biggest, the best and the fastest", especially in view of the impending Trilogy machine, which is expected to be in the 50 mips range.

The 3080 series - the 3083, 3081 and 3084 - are field upgr-

COMPANY PROFILE

There's a saying that "no DP manager ever got fired for buying IBM." But although IBM users find it cosy to be locked in to IBM hardware, it's difficult and expensive to move away.

John Riley writes about hardware, which encompasses type-writers, giant mainframes, microcomputers, word processors, robots - and even space satellites



The 1960s saw the introduction of the miniskirt and IBM's 360 mainframes.

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Product	Year	Version	Notes
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OS/VS1	1971	1.1	Minor update
OS/VS1	1972	1.2	Minor update
OS/VS1	1973	1.3	Minor update
OS/VS1	1974	1.4	Minor update
OS/VS1	1975	1.5	Minor update
OS/VS1	1976	1.6	Minor update
OS/VS1	1977	1.7	Minor update
OS/VS1	1978	1.8	Minor update
OS/VS1	1979	1.9	Minor update
OS/VS1	1980	2.0	Major release
OS/VS1	1981	2.1	Minor update
OS/VS1	1982	2.2	Minor update
OS/VS1	1983	2.3	Minor update

COMPANY PROFILE

What are the prospects for IBM's systems software — especially its VSE system?

Jonathan Clarke, a senior consultant with Reed Stead Morrell,

analyses IBM systems software and conjectures what the giant will get up to next in an extract from a forthcoming Xephon seminar on strategies for VM/VSE.

What will IBM do with its software?

UNTIL recently, being part of the IBM user fraternity meant having hardware which carried the IBM label, an IBM operating system, and additional IBM-produced software components such as TP monitors and database systems. Such has been the rapid growth of plug-compatible hardware and software suppliers that the only common feature among IBM users today is likely to be that the operating system alone comes from IBM. Exceptions, such as EDOS, do not comprise a significant share of the market.

IBM has two main families of operating systems for general purpose production environments — the DOS or VSE family and the OS or MVS family.

In the beginning (the mid-1960s) there was System 360. Its operating system was called OS, but would run only on a computer with a large amount of main memory. 32K was large in those days. It was also expensive, so smaller operating systems were developed to support the smallest processors of the System 360 series. These did not have the same facilities as OS, but frills and functions had to be disregarded to make the operating systems run on small machines. The survivor of these early small operating systems was DOS.

The growth strategy in the early days was simple for the expanding DOS user. When the DOS system could not provide sufficient facilities, or a larger machine was needed, the user would convert to OS. As time went on, this became more and more expensive, as an increasingly larger investment in DOS-based applications would be wasted.

At the top end of the operating systems main facilities were added, and OS was split into MRT and the larger MVT.

The arrival of the System 370 range of processors heralded virtual storage versions of the operating systems. Hence DOS became DOS/VS; MRT became OS/VS1; and MVT became OS/VS2, which was provided in two forms called SVS (later dropped) and MVS.

New users of IBM mainframes would take either DOS/VS or the slightly larger OS/VS1. As they grew in computing requirements, a conversion to MVS would be suggested. This was much simpler for the OS/VS1 users than for the DOS/VS users, but there were still major organisational problems in testing and developing the new operating system.

Enter VM. This was offered by IBM as an operating environment that could act as host to one or more other operating systems. Hence old DOS-based applications and new OS-based applications could co-exist on the same machine. When DOS applications had been converted to OS, VM could be dropped. During the 1970s, VM was definitely the Cinderella of IBM operating systems. Although it allowed greater flexibility, it imposed a substantial overhead, as at least two operating systems had to be resident in the same machine.

VM's fortunes changed with the introduction of the 4300 series. DOS/VS received the most obvious facelift, when DOS/VSE was announced with a timesharing on-line editing system and other in-

teractive products. But the 4300 processors included a lot of microcode, and much of this reduced the overhead of VM. Microcode assists were provided for VM, VS1, and eventually MVS.

The effect on VM was to make it the fastest growing operating system round about 1980. Instead of being ditched when a conversion to MVS was completed, VM was frequently kept on, chiefly for its flexibility and its CMS component. Moreover, the combination of VM and VSE (ie DOS/VSE) often meant that bottlenecks which had produced the conversion requirement were removed — at least for a time.

Meanwhile, the OS-based operating systems were far from being ignored. As these were the operating systems used by the biggest and most technically demanding customers, the largest version (OS, then MVT, then MVS) had

VSE has survived various attempts to kill it off largely because of the large user base, and the fact that VM does not support CICS directly

to have all the bells and whistles available. Teams of technical support staff were (and still are) needed at each site just to keep the operating system in check. The increased demands for more processing power and software capability led to the emergence of the 308X range of processors and the extended architecture. For MVS, this has meant MVS/XA, with its larger virtual storage addressing capability (31 bits instead of 24 bits).

The evolution from OS to MVS/XA has been the result of considerable IBM development and re-development including complete rewrites. En route, the smaller versions of OS have disappeared (like SVS), or are about to disappear (like OS/VS1). Even MVS/SP must have its days numbered, though few users will worry about that over the next two

1980 and announced that she would be describing the facilities of the VSE SPO/E Release 2, the audience was cheerfully astounded that IBM would even dare to bring out a second release.

However, IBM persisted, got it right, and the SPO/E is now part and parcel of almost every VSE installation.

For most VSE or VM/VSE users with average growth, the facilities provided by the existing components are sufficient, and the expected IBM development of VSE is likely to satisfy users' own expanding requirements. Yet for the largest VSE and VM/VSE installations, the principal question is not "Will there be a conversion to MVS?" but "When will there be a conversion?"

Not everything needs to be converted, of course. The principal subsystems for TP (CICS) and

or three years. In any case, a conversion from MVS/SP to MVS/XA will not cause severe headaches.

Over the last 20 years, the smallest mainframe operating system (VSE) has grown considerably in function from the original specification for DOS. Meeting, though lagging behind, user's requirements, VSE and its ancestors acquired a spooling system (POWER), a timesharing system (ICCF), and products for controlling online and database work.

System generation was a major problem until IBM came up with the idea of supplying customers with an integrated, pre-generated version of the software components. This was known as the SPO/E, and its original version was little short of a disaster. Its reputation was so bad that when one of the SPO/E development team addressed a meeting of VSE systems programmers in August

database (DL/I), and the major access methods (VTAM for telecommunications and VSAM for data on discs), were developed as cross-system products.

The principal software subsystems for VSE are, fortunately, similar to their counterparts in the OS family of operating systems. Thus CICS and DL/I components in a VSE installation have formats and facilities which are almost identical to CICS and IMS/DB in an MVS site. Likewise, VSE/VSAM is very similar to OS VSAM (and DF/EF), which means that data can be transported without too much difficulty. VTAM and networking products such as NCCP are also common to both operating environments.

Indeed, the most obvious differences between the VSE and MVS environments are the job control language and the job entry subsystems (VSE/POWER or JES2, JES3).

SSX/VSE provides a Cobol/CICS environment for an application machine. This is a cut-down automatic version of VSE, which employs interactive dialogues to generate commands for job control, such as POWER and VSAM. Typical users would install a package, run the package and be only slightly aware of the system software.

Aimed at installations new to IBM, SSX/VSE, though easy to use, has now had the warmest reception in the market, because it is deemed to be slower and less flexible than native VSE. In a similar way, a car with an automatic gearbox is easier to drive than a car with a manual gearbox, though it uses more petrol and might not accelerate as quickly. Having introduced the idea of automating its operating systems, IBM is likely to spend more effort in making them easier to use. Remember, even the SPO/E idea took time to be accepted.

The main use of VM was originally as a hypervisor, to permit other operating systems or multiple copies of the same operating system to run on the same machine. VM/VSE is the most common combination, though VM/MVS is increasing.

The most popular component of VM is CMS. This is a single-user environment which provides full screen editing capability, in addition to powerful, easy-to-use commands and procedures.

CICS

CMS

DB2

DF/EF

DL/I

DOS

DOS/VS

DOS/VSE

ICCF

IMS

IMS/DB

IMS/DC

JES 2, JES 3

MFT

MVS

MVS/SP

MVS/XA

MVT

NCCP

OS/VS1

OS/VS2

POWER

SPO/E

SNA

SSX/VSE

SVS

VCNA

VM

VSAM

VSE

VS1

VTAM

Customer Information Control System. The ubiquitous TP monitor. Conversational Monitor System. The most popular program development system around.

Relational-style database for MVS systems. Data Facility/Extended Function, unique for VSAM.

Data Language/I; database for VSE systems. Disc Operating System, circa 1964.

DOS/Virtual Storage, circa 1972.

DOS/Virtual Storage Extended, circa 1978.

Interactive Computing and Control Facility. Timesharing system for VSE.

Information Management System. Database component of IMS. Superseded by DL/I.

Data communications component of IMS. Less popular than CICS.

Job Entry Subsystem: spooling systems for MVS.

Multiple programming with a Fixed number of Tasks.

Immediate predecessor of OS/VS1. Multiple Virtual Storage i.e. many Virtual Storage address spaces.

MVS/System Product.

MVS/Extended Architecture.

Multiple programming with a Variable number of Tasks.

Predecessor to SVS and MVS.

Network Communication Control Facility. Operating System i.e. OS/360.

OS/Virtual Storage I.

Generic term for SVS and MVS.

Spooling system for VSE.

System Installation Productivity Options extended.

System Network Architecture.

Small Systems Executive/VSE.

Single Virtual Storage.

VTAM Communication Network Application.

Virtual Machine.

Virtual Storage Access Method; controls data on discs.

Virtual Storage Extended.

Virtual Storage/1 i.e. OS/VS1.

Virtual Telecommunications Access Method.

Table 1: What the abbreviations mean

machine. VM/VSE is the most common combination, though VM/MVS is increasing.

The most popular component of VM is CMS. This is a single-user environment which provides full screen editing capability, in addition to powerful, easy-to-use commands and procedures.

VM's rise to popularity was based on three further factors: program development through CMS is very easy; the facilities of ICCF were rather poor for a large number of users; and systems programmers do not need to come in at weekends to test new versions of software if VM is installed.

Although VM is most frequently used as a host, it is also a viable operating system in its own right — ie production does not need a guest operating system, such as VSE.

There are two main drawbacks to VM as a self-sufficient operating system: CICS will not work unless either VSE, VS1, or MVS is present, and VCNA provides an awkward interface to a SNA network.

MVS is the operating system used in the largest sites. It provides all the facilities required by sites with complex online database and batch applications.

MVS comes in two versions. Version 1 is one we have all come to know and love, and offers 24 bit addressing (ie System 370 architecture). Version 2 offers 31 bit addressing and is known as MVS/XA. It removes many of the restrictions that large applications have encountered, and within three years many installations will have MVS/XA as a matter of course.

MVS provides users of large processors with a flexible, high-performance system, with good data security and integrity. In earlier days, the heavy use meted out to an MVS systems would be primarily batch. Nowadays, it is mainly online.

The online component of MVS applications used to be IMS/DC. However, CICS has ousted this, and is now the most popular TP monitor for large installations, because of the drawbacks of IMS/DC, and because many installations have migrated to MVS from OS/VS1 or DOS-based operating systems. These already had online CICS applications, and their users preferred to keep CICS when in an MVS environment.

For VM, developments in the use of extended address spaces, likely, and a better interface to SNA networks is highly probable.

VSE, meanwhile, has been various attempts to kill it off. In the VM term is stability, largely because of the large user base, and the fact that VM does not support CICS directly. It is reasonable to expect VSE to continue for some time to come, but one of the drawbacks — 24-bit addressing — will have to be overcome. Many large TP systems are probably close to exhausting available 16 Mb of virtual storage.

The operating system used still very much in IBM's mainframes and it is likely to continue in a certain direction.

OPERATING SYSTEM HARDWARE

SSX/VSE

small 4300

VSE

all 4300

VM

all 4300

VM/VSE

4300, 308X

VS1

4300 and older (303X, 305X)

VM/VS1

4300, (308X)

VM/MVS

4341, 303X, 308X

MVS version 1

3241, 303X, 308X

MVS/XA

308X

Table 2: Operating system typical processors

ments grow, they will shift to MVS/XA, if only because the line systems will be large and expensive. Although IBM has said that development of MVS/VS1 will continue, it has no real intention of continuing the same rate as MVS/XA. MVS growth path is not as steep as MVS/XA, as many systems are still in the pioneer sites.

In addition to the current use of software components of the system, there will probably be improved methods of extending the system. These may include the relational database (DB2) and product of application development.

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OS/VS1	1980	2.0	Major release
OS/VS1	1981	2.1	Minor update
OS/VS1	1982	2.2	Minor update
OS/VS1	1983	2.3	Minor update

The suppliers who join the bandwagon

WHY doesn't IBM supply all the software for its machines? Some people might say that it doesn't do it well enough. It's closer to the truth to say that IBM probably doesn't want to or need to produce all the software. The third party suppliers do little harm and a lot of good to IBM's own market.

People will not buy machines without software, and the more choice there is the better the software and the support is likely to be.

Commercially, IBM's own software has not done badly. Its software revenue is tucked away with services, which last year clocked up \$28 million.

Some software gurus say that IBM software is top heavy, and soaks up machine resources like a sponge, forcing the user to buy more hardware to run it.

Back in 1965, a company called Applied Data Research supplied a commercial add-on to IBM's own software. The product, called Autoflow, was a design aid, and is

Commercially IBM's own software has not done badly. Its software revenue last year was around 10% of its \$34 billion turnover

still going strong. Since then the supply of solutions from outside the IBM fold has become big business.

What third party suppliers have to offer is, by definition, something that IBM can't supply. It could be improved functionality, (ie more features) or a lower price or simply a facility not in IBM's catalogue.

Since ADR's first venture into selling add-ons, several companies have flourished to become multi-nationals themselves: Cincom, Cullinet (formerly Cullinane), Informatics, applications supplier MSA, and a host of others.

The field left open by IBM is so large that many companies make a living out of one particular corner. SKK, for example, well-known for its security software, ACP, or the SAS Institute and ISSCO, both of which make a healthy and ever-growing living out of providing graphics add-ons for IBM systems.

Originally the main concern of most systems suppliers was the performance of the hardware. Suppliers such as Cincom, which made its name with the Total Database, could promise the IBM user more efficient use of hardware.

Cincom's lead was followed by Cullinane, which produced the IDMS database which was adopted by ICL. IDMS caught the beginning of the productivity wave. At the end of the late 1970s, CICS and database became the bottomless pits which swallowed up computer and human resources, and the fight was on to supply the quickest, cheapest, most friendly method of avoiding IBM's snares.

CICS aids or substitutes now abound. Informatics supplied one of the earliest, and its Trans IV was launched worldwide in 1980 as a

way of de-skilling the CICS environment. Trans IV de-mythified CICS by reducing it to a series of menus and fill-in-the-blanks screens.

Oxford Software's UFO also spread rapidly as a quick-CICS aid, and the arrival of Manul from Cincom, just in time to replace the ageing Total, brought a new lease of life to CICS.

Most of the productivity aids relied on interactive computing, and made it possible for the first time for end users to control their own data and resources. The idea of relational databases introduced query languages, which enabled end users to select the data they wanted without consulting the programmer.

IBM's own long-running relational database project System R somehow made the whole idea acceptable. It is a notable feature of the dedicated IBM user that until IBM itself does something, it is not quite respectable.

Now most databases offer relational overlays, in the form of fill-in-the-blanks questions which pull all the relevant data into one hit file, and then make a search. Most of these are easier to use and more efficient than IBM's own SQL/DS.

Although the new wave of IBM-compatible relational databases, such as Oracle, have gone further towards being end-user tools, the hierarchical database tools have held their own in terms of productivity aids. Cullinet's IDMS is now surrounded by a host of tools for reporting, querying and otherwise manipulating data.

Other major suppliers such as ADR, have readily followed the pattern of the complete range and the line between systems and applications suppliers, which used to be so clearly delineated, has become blurred. Computer Associates, which used to specialise in performance measurements, now contains human and programmer performance among its concerns, and products such as CA-Scheduler, the automated DP system, are aimed directly at improving productivity.

The line has been blurred further as some of the systems houses move into supplying applications. Computer Associates has recently brought out its own relational database CA-Universe, complete with business applications. Database-related applications brought Cincom into the business of supplying manufacturing software with MRPS and AD into the financial modelling business with Engage.

It was in the mini-computer market that IBM really discovered how dependent it was on the independent suppliers. The revolutionary database-oriented System 38 took a long time to leave the ground, partly because it was so new that no one was ready with applications.

With the next step, down into the micro world, IBM's reliance on third party suppliers was not only admitted out loud, but enshrined in the marketing policy adopted for the Personal Computer. The dominance of the CP/M operating system in the micro market was a lesson not lost on IBM, and it turned the market on its head by adopting not the well-established

COMPANY PROFILE

Not everybody who owns an IBM machine buys software from IBM.

For one thing, some of them probably don't think too much of IBM's offerings. And for another, IBM doesn't

need to be outstanding at software.

Consequently, as Claire Gooding reports, there are a large number of independent companies supplying software for IBM hardware.



The more choice users have, the better their software is likely to be.

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DEC 1100 4096KB 140,800	DEC 1100 4096KB 140,800
DEC 1100 8192KB 281,600	DEC 1100 8192KB 281,600
DEC 1100 16384KB 563,200	DEC 1100 16384KB 563,200
DEC 1100 32768KB 1,126,400	DEC 1100 32768KB 1,126,400
DEC 1100 65536KB 2,252,800	DEC 1100 65536KB 2,252,800
DEC 1100 131072KB 4,505,600	DEC 1100 131072KB 4,505,600
DEC 1100 262144KB 9,011,200	DEC 1100 262144KB 9,011,200
DEC 1100 524288KB 18,022,400	DEC 1100 524288KB 18,022,400
DEC 1100 1,048,576KB 36,044,800	DEC 1100 1,048,576KB 36,044,800
DEC 1100 2,097,152KB 72,089,600	DEC 1100 2,097,152KB 72,089,600
DEC 1100 4,194,304KB 144,179,200	DEC 1100 4,194,304KB 144,179,200
DEC 1100 8,388,608KB 288,358,400	DEC 1100 8,388,608KB 288,358,400
DEC 1100 16,777,216KB 576,716,800	DEC 1100 16,777,216KB 576,716,800
DEC 1100 33,554,432KB 1,153,433,600	DEC 1100 33,554,432KB 1,153,433,600
DEC 1100 67,108,864KB 2,306,867,200	DEC 1100 67,108,864KB 2,306,867,200
DEC 1100 134,217,728KB 4,613,734,400	DEC 1100 134,217,728KB 4,613,734,400
DEC 1100 268,435,456KB 9,227,468,800	DEC 1100 268,435,456KB 9,227,468,800
DEC 1100 536,870,912KB 18,454,937,600	DEC 1100 536,870,912KB 18,454,937,600
DEC 1100 1,073,741,824KB 36,909,875,200	DEC 1100 1,073,741,824KB 36,909,875,200
DEC 1100 2,147,483,648KB 73,819,750,400	DEC 1100 2,147,483,648KB 73,819,750,400
DEC 1100 4,294,967,296KB 147,639,500,800	DEC 1100 4,294,967,296KB 147,639,500,800
DEC 1100 8,589,934,592KB 295,279,001,600	DEC 1100 8,589,934,592KB 295,279,001,600
DEC 1100 17,179,869,184KB 590,558,003,200	DEC 1100 17,179,869,184KB 590,558,003,200
DEC 1100 34,359,738,368KB 1,181,116,006,400	DEC 1100 34,359,738,368KB 1,181,116,006,400
DEC 1100 68,719,476,736KB 2,362,232,012,800	DEC 1100 68,719,476,736KB 2,362,232,012,800
DEC 1100 137,438,953,472KB 4,724,464,025,600	DEC 1100 137,438,953,472KB 4,724,464,025,600
DEC 1100 274,877,906,944KB 9,448,928,051,200	DEC 1100 274,877,906,944KB 9,448,928,051,200
DEC 1100 549,755,813,888KB 18,897,856,102,400	DEC 1100 549,755,813,888KB 18,897,856,102,400
DEC 1100 1,099,511,627,776KB 37,795,712,204,800	DEC 1100 1,099,511,627,776KB 37,795,712,204,800
DEC 1100 2,199,023,255,552KB 75,591,424,409,600	DEC 1100 2,199,023,255,552KB 75,591,424,409,600
DEC 1100 4,398,046,511,104KB 151,182,848,819,200	DEC 1100 4,398,046,511,104KB 151,182,848,819,200
DEC 1100 8,796,093,022,208KB 302,365,697,638,400	DEC 1100 8,796,093,022,208KB 302,365,697,638,400
DEC 1100 17,592,186,044,416KB 604,731,395,276,800	DEC 1100 17,592,186,044,416KB 604,731,395,276,800
DEC 1100 35,184,372,088,832KB 1,209,462,790,553,600	DEC 1100 35,184,372,088,832KB 1,209,462,790,553,600
DEC 1100 70,368,744,177,664KB 2,418,925,581,107,200	DEC 1100 70,368,744,177,664KB 2,418,925,581,107,200
DEC 1100 140,737,488,355,328KB 4,837,851,162,214,400	DEC 1100 140,737,488,355,328KB 4,837,851,162,214,400
DEC 1100 281,474,976,710,656KB 9,675,702,324,428,800	DEC 1100 281,474,976,710,656KB 9,675,702,324,428,800
DEC 1100 562,949,953,421,312KB 19,351,404,648,857,600	DEC 1100 562,949,953,421,312KB 19,351,404,648,857,600
DEC 1100 1,125,899,906,842,624KB 38,702,809,297,715,200	DEC 1100 1,125,899,906,842,624KB 38,702,809,297,715,200
DEC 1100 2,251,799,813,685,248KB 77,405,618,595,430,400	DEC 1100 2,251,799,813,685,248KB 77,405,618,595,430,400
DEC 1100 4,503,599,627,370,496KB 154,811,237,190,860,800	DEC 1100 4,503,599,627,370,496KB 154,811,237,190,860,800
DEC 1100 9,007,199,254,740,992KB 309,622,474,381,721,600	DEC 1100 9,007,199,254,740,992KB 309,622,474,381,721,600
DEC 1100 18,014,398,509,481,984KB 619,244,948,763,443,200	DEC 1100 18,014,398,509,481,984KB 619,244,948,763,443,200
DEC 1100 36,028,797,018,963,968KB 1,238,489,897,526,886,400	DEC 1100 36,028,797,018,963,968KB 1,238,489,897,526,88

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No matter how successful you are in your present job, there are many reasons why you should consider a move to Hambro Life.

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Once you've read it we know you'll want to be part of the exciting future at Hambro Life.

If you've been reading the Press over the last few months, you'll know that there's no where more healthy than the financial sector. **And there's no company within that sector growing, diversifying and succeeding faster or better than Hambro Life.**

Right from the beginning, computer systems have been central to our success — and with all this activity sweeping through the company, our Systems Department is expanding and developing like never before.

All of which means that we need more first-rate Systems professionals to join a team that is second to none.

The job given to you — and the salary it carries — will naturally depend on your experience, ability and potential. We have vacancies at

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£18,000 plus car.

Because Systems feature so highly in our success, the people we recruit have to be something special.

You must be bright and clear thinking, aware of the business implications of what you do, with good communication skills and the ability to cheerfully combine pace with quality.

Your professional skills are more important to us than the

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- * DISTRIBUTED DATA PROCESSING
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- * TRANSACTION PROCESSING

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Roy Davis, Marketing Support Manager on Dunstable (0582) 600272 or write with full career details to:

John Peterson,
Personnel Manager,
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Maylands House, Maylands Avenue,
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What's important to you is the fact that they only ever recruit at the bottom end. So the only way you can go is up. And if you're good you will — fast. In fact, most of their senior managers and consultants are still under 30.

Also you'll find the environment itself unique in as much as you'll be given immediate responsibility and freedom to do things in very much your own way.

Your initial investment will be your degree and at least two years' good programming experience in banking/financial systems, acquired within an IBM and/or DEC environment.

Also you must have worked on at least one relevant project right through to implementation. Some exposure to analysis would be a distinct advantage. Once into the job, it will take all your energies and commitment, your self motivation, problem solving ability and communicative skills.

In return you'll soon be further ahead in your career than you would have thought possible.

Interested? To find out more, contact us quoting reference 6946.



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to £13K + Bonus

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Our client is a world leader in the research, development and manufacture of prescription medicines. The continuing commitment of the research and development department to computerisation has led to substantial growth of their computer resources.

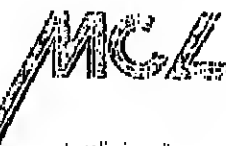
Within this sophisticated multi-machine environment (including VAX, PDP11, IBM 4341 and WANG machines) a challenging opportunity has arisen for a person with communications expertise to play a leading role in the following areas.

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- ETHERNET
- X25
- VOICE COMMUNICATIONS
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This position will provide the opportunity to develop existing communications skills designing, developing, implementing and supporting internal and international communications.

A competitive salary will be paid and benefits include a discretionary bonus scheme, free BUPA and life assurance, contributory pension scheme, flexible working hours and relocation assistance where appropriate.

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Software Engineering £8,000 to £13,000+
Systems Engineering £9,000 to £13,000+
Scientific Programming £0,500 to £10,000+

Applicants should be of graduate standard, and have one to five years' experience in a technical/scientific environment.

Preferred languages include FORTRAN IV or 77, PASCAL, ALGOL, COBOL, BASIC, MASCO and MACRO 11. Some Software and Systems positions also require a working knowledge of INTEL, ASSEMBLERS or Machine Code languages.

Experience with the DEC/PDP ranges, HEWLETT-PACKARD and IBM machines, or a variety of microprocessors would be useful in some instances, as would a knowledge of microelectronics.

Salaries and prospects are excellent. Relocation expenses will be paid where necessary.

Please telephone for an application form or write giving full career details.

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Comms. in Banking

London to £18,000

This is a particularly attractive part of the computer industry combining as it does, the areas of international high finance and constantly improving computer communications systems. Our client has a lengthy background in this area using DEC equipment and now requires additional development and support staff. Good commercial experience in banking or finance is the major requirement.

Systems Software

Herts. £9K-£12K

Continued expansion of our client's system software development has resulted in a number of vacancies for enthusiastic and above all, outstanding systems programmers and engineers. Opportunities exist in many areas including compilers, application tools, transaction processing, comms., etc. We can introduce you to genuine career opportunities offering significant responsibility at the leading edge of technology.

Pascal Programmers

Sussex £10K-£15K

Recent major changes to our client's product range necessitate the recruitment of experienced real-time programmers with a background of at least 3-4 years using PASCAL, preferably with Motorola processors. Particular applications include process control, fail-safe error recovery, advanced diagnostics and self-test and on-line communications to micros and minis.

Process Control

Herts. to £14,000

We are seeking a very experienced person in the area of real-time control systems to solve a range of market needs in the process control field. Candidates must be capable of new product specification and overall systems design. They will follow products through from specification to market launch ensuring continuing product compatibility.

Sen. Systems Analyst

Berks. to £15K + car

We are seeking candidates with 4-5 years experience in an IBM/CICS environment using DBMS in provide pre- and post-sales consultancy for a prestigious company. You must be a self-starter, have a good client manner and be familiar with assembler and a 4th Generation language (e.g. MANTIS). High rewards await outstanding applicants.

Client S/W Support

Bucks & N.W. to £16K + car

Continuing expansion in this highly successful manufacturing company opens the door for software people with experience in on-line D.P. systems, T.P. and comms. Candidates will be expected to assist clients with applications development, perform sizing as required and generally act in an account manager capacity. Excellent prospects and relocation assistance where appropriate.

Field Engineers

Cambs/M'chester package c.£12K + car

Continuing expansion and promotion has created vacancies in this highly successful communications products company. Although data comms. experience preferred we would be interested in applicants with experience as Field Engineers for computer manufacturers. Candidates need to be self-motivated with a good client contact manner.

S/W Design & Development

Middx. £10K-£15K

Two vacancies exist in this development group responsible for the production of Advanced Signal Processing and CAD systems. Packages will include UNIX-compatible Operating Systems, LAN, compilers, high-speed interactive graphics and Videotex look-alike software, using PASCAL and BCPL on Spectel Processor and system architecture. Degree (or equivalent) and expertise in BCPL and disc-based O.S.'s is essential.

Programmers Minis/Micros

Berks. £9K-£12K

A successful company with a product having a special place in the communications and travel industry, requires several programmers at different levels to join existing development teams. Areas of relevant expertise include Z80 Assembler, PDP11 systems, UNIX and 'C', PLZ, Viewdata, CP/M, comms. and travel agency applications. Excellent benefits include special holiday discounts.

Comms. S/W Design

Herts/Beds. to £14,000

Develop your career and your communications software skills by joining a company whose existing range of comms. software is second to none. There are a number of teams working on various developments covering LANs, X25 and 3270 compatible products. Development is on mini and micro systems in assembler and high level languages. Reloc. assistance where appropriate.

Systems S/W Development

Oxon/Berks. to £14,000

For anyone who can show 1 to 5 years experience in compiler techniques, software tool development, Artificial Intelligence or scientific programming, here is an excellent opportunity to broaden your experience and advance your career with a respected and successful systems house. VAX experience would be advantageous. Rewards according to experience and ability.

Sen. Systems Engineer

Herts. c.£10,000

Our client is currently seeking hardware engineers with four or more years background in microprocessor or complex logic design to participate in the development of a new series of minicomputers and associated peripherals. You should be able to demonstrate project leadership ability and a sound understanding of peripheral and communications interfaces.

Videotex Development

London to £16,000

Attractive positions exist for software professionals in the further development of videotex products and related technologies. Currently using PDP11 and VAX with RSX11 and VMS but shortly adding UNIX and 'C' for development tools. For an experience would be of immediate interest. Positions range from development to project management in a customer environment.

UNIX Designers

Herts. c.£12,000

Joining a new development team offers extra opportunity. New product development offers a design challenge and the area of office systems products offers the growth market for the future. All of these are open to skilled operating system software designers with some UNIX experience. Our client is large and successful. They offer long term prospects.

Technical Authors

Beds/Herts. £9K to £12K

These are no ordinary positions; we are convinced that any technical authors who are seriously interested in developing careers with leading companies in the computer industry should be talking to us. Our clients are seeking experienced authors who can work closely with software and/or hardware development teams to prepare user manuals and operating instruction texts.

Sen. Elect. Engineer

Berks. £10K-£12K

The small research unit of a major multinational company currently requires an electronics engineer with 3-4 years experience of digital circuit and computer systems design. You will be supporting the development of image processing and data base applications - oriented systems, designing special-purpose hardware, evaluating equipment etc. Assembler experience a great advantage.

Tandem Development

Middx. £7K to £12K

Opportunities to work on Tandem computers without previous Tandem experience are uncommon and extremely attractive. Our client wishes to meet genuine systems software development people who are keen to develop their careers in a software products company. If you have one or more years experience using assembler and a high level language we would like to hear from you.

Real-time Specialists

Hants. £15K-£15K

Does your background in systems design and programming include experience of CORAL, MASCO, INTEL 8086, Vax or Quality Assurance? Outstanding opportunities exist with our client for technical specialists to undertake various activities including software QA, consultancy, proposal preparation, etc., with the option of moving into project or general management. These positions offer significant scope for career development.

Systems Consultants

Middx. to £30,000

A rapidly expanding computer services and consultancy company requires top level specialists in data communications, distributed processing and electronic point of sale systems. Successful applicants can expect to become involved in any or all activities from: Consultancy, project management, system design, program development, system testing, installation and education. Rewards will be consistent with the level of experience.

Sen. S/W Designers

Beds. to £16,000

An established centre of software development for advanced mini computer systems has identified the need for a major new product. Several very experienced software implementers are required to work together to design and build this product. Most appropriate areas of previous experience are T.P., monitors, comms. and O.S. We wish to hear from people with 6+ years experience.

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Write or telephone (02403) 28383 during office hours -
We are always ready to discuss these and many other interesting positions.
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Indep. with Tech. of Systems offered by this company. You should have a minimum of 12 months ME29 experience to work a three shift system, with the possibility of overtime.
Ref: S/1095C

OPERATOR MIDLANDS c£6K
A minimum of 12 months' micro computer experience is required to operate a Data General MV8000. You will be working in a small friendly team covering 24 hours. Benefits include overtime, staff discounts and LVS.
Ref: S/1096C

OS OPERATOR HERTS c£7K
Young operator with around two years' OS and VMS experience. Responsibilities of VMS and VAX would be an added advantage. You will work in a small friendly team covering 24 hours. Benefits include overtime, staff discounts and LVS.
Ref: S/1097C

DOS/VS OPERATOR HERTS c£10.5K
Operator with 10-12 years' DOS and VMS experience. Responsibilities of VMS and VAX would be an added advantage. You will work in a small friendly team covering 24 hours. Benefits include overtime, staff discounts and LVS.
Ref: S/1098C

MVS OPERATOR DORSET c£11.5K
A high calibre MVS Operator with some 12/18 months' experience. You will be working in a small friendly team covering 24 hours. Benefits include overtime, staff discounts and LVS.
Ref: S/1099C

MVS SHIFT SUPERVISOR BEDS c£10.5K
A high calibre MVS Shift Supervisor with some 12/18 months' experience. You will be working in a small friendly team covering 24 hours. Benefits include overtime, staff discounts and LVS.
Ref: S/1100C

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Prime 150 Operator
PDP 11/70 MVS Operator
DOS/VS Operator
Please call Sue O'Brien regarding the above requirements on 01-536 8411

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Central London Base
Experienced Sales Executive required to develop new business for our client overseas. Proven track record required in D/P/WP selling directly or through distributor overseas.
Age range is likely to be 28-35 and applicants must relish a start up situation. Business acumen and drive and technical expertise are essential attributes.

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S. England
A leading 32 bit computer manufacturer is seeking to expand its salesforce. They require in particular individuals with experience of Office Automation, C.A.D. or distributed data processing. Many of these roles are just for you.
On target earnings £12K-£15K

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This peripheral supplier needs two experienced sales people to sell Disc Drives and Controllers. Microcomputer companies throughout the UK. The ideal background would be experience of peripherals in a similar environment. Applicants must be highly self motivated and willing to travel in large geographical territories involved.
On target earnings £12K-£15K

SALES SUPPORT CONSULTANTS SOFTWARE HOUSE

Middlesex
The Professional Services Division of our client requires consultants with 10 years' plus experience in D.P. This should have been gained in a sales or sales support role with a software house or manufacturer. Experience of IBM, HP, DEC or ICL hardware is preferable as well as in software systems.
Contributors need to be highly motivated individuals who can contribute effectively on the pursuit of new home business.

Please telephone David Jones to discuss your career potential on
Lewes (07916) 71271 or write to him at the address below.

The Electronics Recruitment Company

Temple House, 25/26 High Street, Lewes.
BN1 1JL Sussex BN1 2LU Tel: Lewes (07916) 71271

The world's leading supplier of information services and products, intends to maintain that position by developing advanced communications systems. In particular, effective electronic distribution of information throughout Europe is crucial to successful expansion in that market place. IBM Network Controllers, Multiplexers and 327X devices, applying, SNA, IBM-BSC, X25 Technology and ASYNC TTY Protocols, will be used.

A DATA COMMUNICATIONS SPECIALIST

Is required to join the high calibre corporate communications team. Responsibilities include:-

- Network performance evaluation, modification and design changes
- Planning/Installation of facilities
- User assistance/support
- Liaison with British Telecom and European PTT's for technical support (BT)

Aged 24-30, preferably with a degree or technical equivalent, experience must include:-

FIVE YEARS MINIMUM IN DATA OR TELE-COMMUNICATIONS SUPPORT DATA PROCESSING ENGINEERING AND NETWORKS

A programming background and a second language would be advantageous while self-motivation and good oral/written communications skills are also necessary.

The expansion of communications within the Corporation should ensure outstanding career development potential.

A GENEROUS SALARY OF UP TO £15K will be paid depending on experience. Excellent company benefits, include pension scheme with life assurance, private medical cover and relocation/season ticket assistance, where applicable, will be provided.

Please contact Ivor Brookstone on 01-637 9611
MANAGEMENT & EXECUTIVE SELECTION
Suite 201/208 Albany House, 324 Regent Street, London W1

SENIOR SYSTEMS ANALYSTS

CENTRAL LONDON Up to £14,000

A VARIETY OF COMMERCIAL-ORIENTED DEVELOPMENT PROJECTS, MAINFRAME WITH LARGE NETWORK

Do the following suit your career aspirations?

- the stimulation of a growth environment - DTP staff has increased from scratch to over 100 in seven years, and further growth is planned
- the challenge and interest of varied development work - not only financial control applications, but also risk models, scientific, statistical, etc.
- a high level of job satisfaction, resulting from a solid project involvement and personal responsibility
- training in modern techniques, first-class employment conditions, with sound progression prospects and good job security

Our clients have a commercially-oriented mainframe installation, with a critically important function in controlling and monitoring business activities. The latest hardware and software, with a network of over 100 terminals nationwide, are used. To make possible the further growth of effective computer-based systems, we have been retained to recruit additional Systems Analysts at a senior level.

This opportunity will interest people who have:

- solid analysis experience (say, five years or more) including large systems preceded by COBOL programming
- had involvement from feasibility studies through to implementation
- good leadership qualities and management potential
- sound educational attainments (ideally but not necessarily to degree level)

If you can match these requirements, please ring us in confidence for a career discussion, quoting ref. 194 CW. Messages after hours will be recorded.



EDP SYSTEMS 01.63
52-53 Margaret St. London W1N 7FF 579

Use your D.P. skills to build a career in Information Services £9,000-£13,000

We can offer the following attractive career opportunities at our Research Centre, Sunbury-on-Thames, Middlesex which will suit experienced staff who have the skills necessary for the professional and technological development of Information Services. Our Computing and Information Services Branch is responsible for all aspects of the extensive and expanding information requirements at the Research Centre including: information capture, storage, processing and communication. This Branch covers main activities in Applications, Facility and User Support, Operations and Information Services with scope for special projects.

Applications Group develops, implements and maintains management and technical research information systems supported by Facilities and User Group on VAX, UNIVAC and PDP 11 machines operated by Operations Group.

Analyst/Programmers- Applications (2 posts)

to work on solutions to the information requirements of both Management and Technical Research activities (e.g. for Stores, Accounts, General Management, Exploration Research etc).

You will need:

- * experience in COBOL and/or FORTRAN on VAX/VMS or UNIVAC OS 1100;
- * sound knowledge and practical experience of Database/Information retrieval systems preferably with specific knowledge of one of: BASIS, VAX-11 DBMS, DATARETIVE, DMS 1100, INGRES or RAPPORT;
- * a degree preferably in Computer Science or Mathematics although other qualifications with particularly relevant experience will be appropriate;
- Computer graphics programming experience will be an advantage.

Analyst/Programmer- Facilities/user support

to work in a team on systems support of the following operating systems: VAX/VMS, PWB/UNIX, RSK 11 and RT 11. Opportunities for technical programming supporting research projects will also be available.

You will need:

- * a degree in Computer Science or Mathematics or other relevant discipline;
- * at least one year's experience of systems support in at least one of the following: - VAX/VMS, PWB/UNIX, RSK 11 or RT 11;
- * sound knowledge of FORTRAN;

Some experience of graphics will be an advantage.

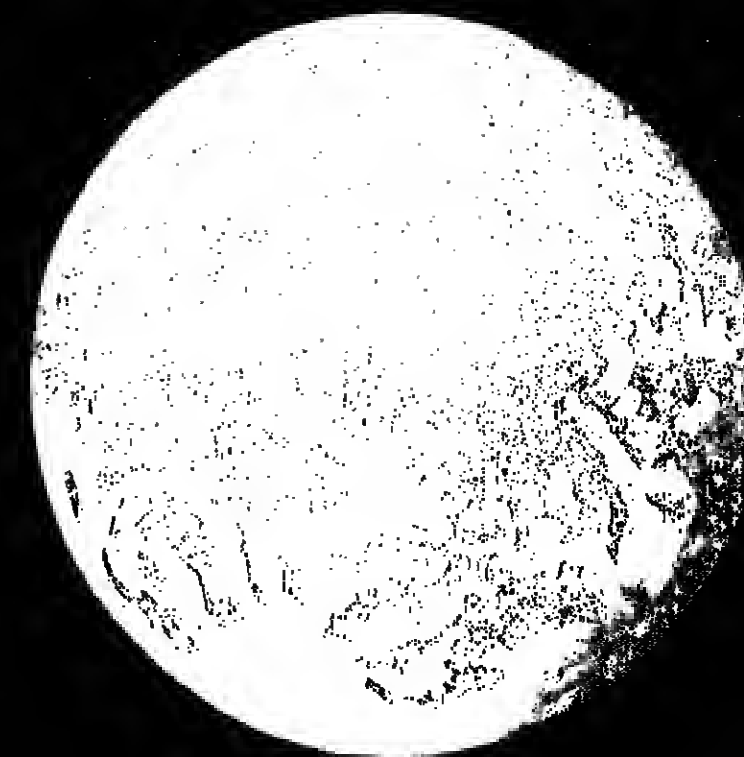
For all posts, sound analytical and inter-personal skills necessary for a service-oriented environment plus the ability to contribute to the development of an overall Information Services strategy are essential requirements.

Starting salary will be in the range £9,000 to £13,000 depending upon relevant experience and qualifications. Excellent benefits include non-contributory pension scheme, subsidised staff restaurant, sports and social facilities and relocation assistance, where appropriate.

Please write with full C.V., detailing how you meet our requirements to Mrs. Anne Hendry, BP Research Centre, Sunbury-on-Thames, Middlesex or post her on Sunbury-on-Thames B2834 for an application form.

BP Research SUNBURY-ON-THAMES

REAL TIME...A WORLD OF INNOVATION



Analyst/Programmers and Senior Systems Analysts to £11,000 p.a.

North Wiltshire (full relocation)

In the world of real time technology, freedom of expression and approach are often constrained by project definition and working practice. The opportunities described below do not subscribe to this attitude and represent first class career positions within a Company well known for its innovative and enlightened attitude. They also represent a real alternative to defence orientated application projects.

Our Client's reputation stretches around the world and they possess unrivalled expertise in the application of real time systems which underlines a capability and intention to remain in this commanding position. With the demand for their products and expertise providing the impetus to push ahead the very frontiers of real time technology, opportunities have been created for key personnel within vital areas.

In essence our Client is seeking high level language experience - CORAL, PASCAL, ALGOL, or FORTRAN - which should have been gained within a real time environment. The nature of their business demands good powers of communication, self-motivation and the ability to be highly innovative in approach. Whilst specific experience is required within the three areas of the Company, it is felt that attitude and interest will probably dictate the definition of suitable areas for each candidate.

Development

This Division is engaged on the development and implementation of mini/micro based real time systems, in the areas of control and monitoring applications. Experience or interest in the increasingly important area of micro technology would be most advantageous.

System Support

This key area supports both in-house and customer developed systems using HP and DEC VAX hardware. Areas include systems and programming advice, technical trouble shooting, CAD support, system enhancements and providing in-house training to system users.

Research and Development

R&D provides the innovative lead in developing new approaches to real time systems using minis and more increasingly micros. This environment is wholly creative and allows for a highly individual approach to software investigation, which results in a high degree of job satisfaction and interest.

Each project requires close liaison with in-house personnel and Client Representatives, and in some areas overseas travel may be expected.

Located in a delightful North Wiltshire town, our Clients offer an attractive relocation facility to those living outside the area. Unspoilt villages and small market towns provide a pleasant alternative to city life, and yet very convenient links with the M4 and M5 allow for commuters to travel from surrounding areas. An excellent railway system and well established shopping centres combine with a wide variety of housing styles to produce a superb setting for a new career.

To find out more about these exciting opportunities, contact the Advising Consultants, **Martin Stainthorpe** or **Brian Harris** on 021-236 3781 (24 hour answering service), or alternatively phone Brian on 0788 77732 (evenings till 9.00pm).

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

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01-935 0671/406 0461

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021-236 3781

NORTH
Newcastle House, 54 Deargale
Manchester M2 2EP
061-633 0427

BELGIUM
Avenue Louise 327
B-1050 Brussels
010 322-640 7151/71

HOLLAND
Willemsparkweg 92
1073 H.M. Amsterdam
010 3120-760947

Systems Engineer

to £13K + Bonus

Kent

to £13K + Bonus

A world leader in the discovery of drugs is expanding its chemical research and development facility in Kent. They require a highly motivated computer specialist to take on the challenge of computerisation of the monitoring and control of process plant and be the focus for the planning and implementation of a new computer facility on this site.

The work will involve technical evaluation, implementation and support of research computers and frequent liaison with headquarters in Welwyn, Herts. The successful applicant will require the following attributes:

- FAMILIARITY WITH DEC EQUIPMENT
- REAL-TIME DATA ACQUISITION EXPERTISE

A competitive salary will be paid and benefits include a discretionary bonus scheme, free BUPA and life assurance, contributory pension scheme, flexible working hours and relocation assistance where appropriate.

For further information please telephone Keith Taylor or write enclosing a full curriculum vitae to our Reading office.



McCOURT COUSINS LTD.

27-29 Greyfriars Road,
Reading, Berkshire
Telephone (0794) 595348 (24 hours)

Chesham House, 150 Regent Street,
London W1R 5FA
Telephone 01-439 6288

Real-Time Mini Software Specialists £10,000-£15,000

Xoron Computing Ltd is an independent UK software house which specialises in consulting and software for real-time computing applications. Formed in 1974, the company has extensive experience in systems software, communications, office automation and process control using most types of minicomputers and the popular microcomputers. The company develops and markets its own software products and also provides project work for clients. Some 70 per cent of Company's business involves DIGITAL computers, principally PDP-11s and VAXs and the company possesses a range of DIGITAL equipment which it uses for software development. Software assignments are carried out by a team of systems designers, all of whom are graduates, at either the Company's London offices or at client's premises. Applicants should have a sound knowledge of real-time systems and experience of at least one microcomputer or microcomputer. Please write in the first instance enclosing a cv. to Mr. J. Jarvis at the address below.



Xoron Computing Ltd
28 Maddox Street,
London W1R 5PF
England
Telephone 01-439 6288

The company specialises in multi- and bi-lingual installations of peripherals. Versatility and innovation thus, highly prized in the candidate.

A GRADUATE

with minimum experience of two years in microprocessor applications and Z80/Assembler programming is needed in work as part of a small team. Knowledge of 8086 programming is a distinct advantage.

A salary of £7,000 to £10,000 is offered initially depending on experience. Reviews to salary dependent on contribution in team effort.

Please send c.v. to: Alphacrete Electronics Ltd
32 Eveline Road, MITCHAM CR4 3LE

IBM Computer Professionals Join Aramco - you will be travelling in good company.

Aramco is the acronym for the Arabian American Oil Company and its principle role in Saudi Arabia is serving as a key developer of the Kingdom's Energy Resources. These resources are immense and has given Aramco the distinction of being the largest oil producing company in the world.

Its nerve centre is at Dhahran based on the Arabian Gulf where complete North American style residential communities have been built for Aramco's thousands of expatriate employees.

These vast communities offer a complete range of amenities and recreational facilities that even include desert golf courses. As you will expect, Aramco is a major user of Electronic Data Processing and its attendant hardware and software and its commitment to computerisation is total and on-going, so much so that their computer installation rates as one of the most advanced in the world.

Their newest computer centre EXPEC, which is involved primarily with oil exploration and petroleum engineering boasts the very latest IBM State-of-the-Art Technology and equipment for which they are looking to recruit professionals with the following skills.

SENIOR OPERATORS-UP TO £20,000+

At least four years experience in one or more of the following categories:

1. Large IBM systems operating under MVS/JES2 or JES3, TSO and VTAM, VM or VM/CMS.
2. Large VAX systems.
3. 3800 printers and microfiche output.
4. Graphics and plotters. (Geospace, Benson, Varian etc.).

SYSTEMS ANALYSTS-UP TO £23,000+

At least five years of experience in a large scale IBM environment, specific skills in MVS, VM, SAS, TSO/SPF are required aligned with a

strong background of PL/1 or Fortran. A background in training or instructing would be desirable or experience as a supervisory member of a large project team.

SCIENTIFIC ANALYST PROGRAMMERS-UP TO £23,000+

At least four years' programming experience in Fortran or PL/1 in a large IBM installation, with additional skills in one or more of the following areas:

1. ISPF Dialogue Manager.
2. Project Development Methodology and structured programming techniques.
3. Reservoir simulation.
4. IBM utilities.

SOFTWARE PROGRAMMERS-CIRCA £23,000+

At least three years' pure software experience in an MVS environment with special emphasis on one or more of the following: Data communications, NCP, VTAM, SNA, General purpose software, PL/1, Fortran or Mark IV.

Selected candidates, who preferably should be educated to Degree level, will be offered an indefinite term contract, initially on single status and a range of benefits that can be compared with the best in the Middle East.

Please contact Caroline Tee for application details, on 01-723 4053, or write in confidence to: COMCAP RESOURCES, 26 Chilworth Street, London W2 6DT. Alternatively complete the FREEPOST coupon below.

The need for computer personnel is on-going and if you are not available at present, you should register now for future opportunities.



ARAMCO



COMCAP RESOURCES LTD.

partners in progress

SURNAME: _____ FIRST NAMES: _____
 ADDRESS: _____ TELEPHONE HOME: _____ OFFICE: _____
 JOB TITLE: _____
 BRIEF EXPERIENCE: _____
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 COMCAP RESOURCES FREEPOST LONDON W2 6BR. LONDON-ZURICH-COPENHAGEN-OSLO-STOCKHOLM-MILAN-FRANKFURT-ROME
 RECRUITMENT CONSULTANTS

GORDON'S GIN COMPUTER DEPARTMENTAL SUPERVISOR

c£11000

Gordon's, distillers of the world's largest selling gin, invite applications from suitably qualified personnel for the above position, at the Company's Head Office, Goswell Road, London EC1.

The successful applicant will be responsible to the Computer Manager and will be required to supervise the operating, developing and administration of the Computer, its systems and personnel, and will have had experience at programming, systems analysis and the use of on-line systems on mainframe computers. Additionally, use of communication equipment and knowledge of networks would be advantageous.

Company benefits include an attractive salary, BUPA, subsidised lunches, valuable non-contributory pension scheme and 23 days annual holiday.

Please telephone for application form:

Mrs. I. Crighton, (01-253 2060),
Tanqueray, Gordon & Co. Ltd.,
260/266 Goswell Road,
London EC1V 7EE.

ICL CONTRACTS IN THE NORTH

P-E Computer Services Limited, a long-established and highly successful software house for many years supplemented its own staff resources with freelance professionals.

We currently have urgent requirements for freelancers with the following skills:

1900 COBOL G3 DME
ME29 IDMS and/or TME TP
2900 VME IDMS
TPMS Technical Support
IDMS Consultant

Whether you are available now, in the near future, or are considering freelance work for the first time, plan your freelance career by telephoning or writing with your cv to Peter Moore at the address below.

P-E Computer Services Limited

Winchester House, Fountain Street, Manchester M2 2EF. Tel: 061-228 2776

Freelance Assignments

We need professional contractors to join existing teams and to help form new ones. London/Home Counties.

PL/1

- * Designers DL/1, CICS, DOS/VSE
- * Senior Programmer DL/1, CICS, DOS/VSE or MVS
- * Programmer DL/1, DOS/VSE
- * Programmers CICS, MVS

These assignments start over the next six weeks. Please contact us NOW regardless of availability.

Please Ring: Sheila Fox
Link Associates Limited
24a High Street, Chesham, Bucks. (0494) 784922



*"An excellent
location for the
Yorkshire Dales
and 'Herriott Country'"*

The European Data Centre for this Major Industrial Group, situated in a modern facility in Co. Durham, requires a Database Specialist to take responsibility for IMS development. Reporting to the Technical Support Manager, you will lead a team within the Information System Group to provide support to the database users in the European Network.

In addition to advising the users you will liaise with the North American Data Centre to ensure that Group wide consistent standards are established and maintained.

In order to meet this challenge you will be well educated, ideally to degree level, with the ability to communicate with your fellow professionals. Extensive database experience is essential, and you should be conversant with the uses and facilities of IMS, with well developed design skills, to enable you to make effective and efficient use of the computing resources.

On the technical side the installation operates under MVS/SP with ROSCOP, ACT/VIAM, NIE and of course IMS. The sophisticated communications network links the two continental centres, providing electronic mail facilities and access to each other's software. Future plans include hardware upgrade and exciting software development.

As described already, the centre is located on the Co. Durham/North Yorkshire border, close to 'Herriott Country' with good road, rail and air links. Housing choice is excellent, inexpensive and varies from sleepy villages to bustling suburbs within comfortable commuting distance.

All this, and a salary of c £12,500, free BUPA and 25 days holiday.

Can you afford not to contact **JOHN WHELAN** on 061 833 0427 (24 hour answering service), or apply in writing to the Manchester Office address:— Specialist Computer Recruitment Ltd., International House, 84 Deansgate, Manchester.

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

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London W1M 5HS
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Queensway, Birmingham B3 3JY
021-236 3781

NORTH
International House, 81 Deansgate,
Manchester M3 2LH
061-833 0427

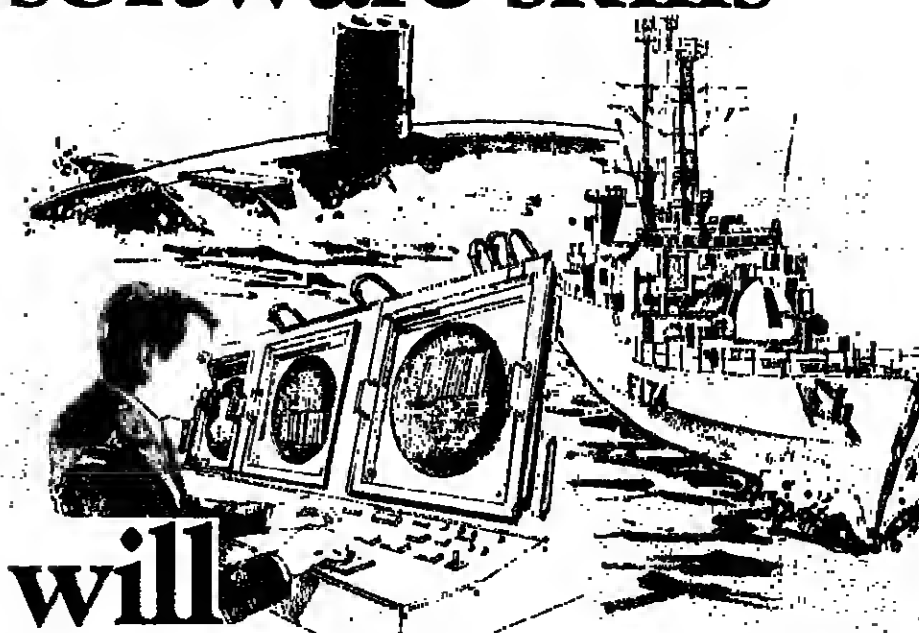
BEELIUM
Avenue 1000, 1000
Rue 4, 1000 Brussels
010 322 640 7151/71

HOLLAND
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1121 H.M. Aardvijk
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Ferranti Computer Systems Ltd.

Cheadle Heath Division

Your software skills



will keep them shipshape and watertight

up to £14K... attractive benefits... excellent prospects
Your next career move to a more rewarding way of life... MANCHESTER... realistic house prices and a 25% saving

We have achieved an enviable success record in real time computer systems and we are at the forefront of future generation Sonar, supplying major parts of the latest sonars to the Royal Navy. This military application has given us unique experience utilising highly innovative skills in hardware and real time software for data handling, visual interfaces and display generation. Further developments encompass distributed processing with Argus M700 and Intel 8086 processors interfaced to both Envois and 1553B data highways... and we also have lead experience in configuring multi-processor multisystems under MASCOT.

These exciting developments have created career opportunities for SOFTWARE SPECIALISTS and SOFTWARE ENGINEERS with a degree in an Engineering Subject, Mathematics or Physics and sound experience in real time computer systems.

Informal discussion... please contact Colin Roberts, Career Development Manager on 061-428 0771 during office hours and 061-428 0194 after 5 p.m. and at weekends, or write to Colin, quoting reference 329/36, at Ferranti Computer Systems Limited, Bird Hall Lane, Cheadle Heath, Stockport SK3 0XQ.

FERRANTI
Selling technology

CAE Development/Support W Midlands

£7-13K

CAE systems division of manufacturing corporation require staff for new development and package support for engineering design applications. Degree standard applicants should have relevant experience in Fortran/Basic on IBM mainframes under MVS/TSO, or an DEC PDP or similar minis. Senior positions require good experience of structural analysis (finite element)/graphics. Ref. 601

DEC VAX Permanent/Contract West, Wales

£ negotiable

Manufacturing and distribution companies require DEC VAX programmers and analyst programmers at varying seniority levels for commercial applications development in Cobol under VMS. More senior positions call for minimum 6 years d.p. experience including two on DEC VAX. Excellent permanent and contract opportunities. Ref. 509

DEC VAX Systems Programmers

Wilt, Avon £10-12K + negot.

Subsidiaries of large companies seek two systems programmers for systems software support, performance monitoring, systems tuning and same development work on VAX 11/780's under VMS. One position requires DECNET knowledge; both require good Fortran. Experience in Basic/Assembler/Pascal desirable. Excellent conditions. Re-location assistance. Ref. 670

HP Analyst. Programmers

S Wales, Hants. £9-11K

Manufacturing companies with multi location installations in UK and Europe require an analyst based in Wales and programmers based in Hants with a minimum of 1 year's Hewlett-Packard experience on commercial applications. Frequent travel involved - outgoing personalities required. Excellent career opportunities. Ref. 883

Write or telephone:

London West Computer Recruitment
Evergreen, Dauntsey, Chippenham,
Wiltshire SN15 4JA
Telephone: (0249) 891114

LWCR

London West Computer Recruitment

IBM Programmers

Berks

£9-13K

A major group with a large IBM mainframe network seeks several programmers with IBM Cobol experience to work on on-line commercial database systems using CICS and DLI. First class opportunities for career progression. Excellent salaries and conditions. Re-location assistance. Ref. 827

ICL Analysts, Programmers

S Wales

to £12K

Financial services organisation requires analysts and programmers to develop systems on large ICL mainframe. Experience of financial applications essential for analysts. All applicants should have a Cobol background and have degree or equivalent qualifications. Re-location assistance. Ref. 863

RPG II/III A/Programmers

Glos, Wilt, Hants.

£ negotiable

Manufacturing and commercial services organisations with IBM System 38 installations have vacancies for analyst programmers and programmers with RPG experience. Good salaries and re-location assistance in all cases. Ref. 787

IBM Systems Programmers

N Bucks

£9-16K+

Computer services organisation and manufacturing companies require several systems programmers of junior and senior level with experience of MVS/TSO and/or DOS VSE plus CICS. Knowledge of at least one major database software system is desirable. Good benefits. Re-location assistance. Ref. 884

Senior Real Time Specialists

Hants

£13.5-15K

Major company developing advanced real time military communications systems need senior real time specialists project leaders. GEC 4000 and Coral experience is particularly needed. Knowledge of DEC VAX, Intel plus low and high level languages is relevant. Applicants aged c.35 years must have good degree qualifications. Excellent re-location package. Ref. 746

Microprocessor A/Programmers

S Glos

£7-10K

Small subsidiary of international group building advanced integrated microprocessor systems requires two analyst programmers to specify and program new sub-systems on Intel micros. A minimum one year's experience of 8085 or Z80 Assembler is essential and PLM or Basic desirable. Good prospects in expanding company. Re-location assistance. Ref. 877

Real Time Engineers

West, South, Wales

£10-£15K+

Major companies developing real time applications in telecommunications, process control, telemetry, industrial automation and military systems require experienced team members and project leaders. Computer Science/Engineering degrees essential, plus assembler and/or high level real time language experience. Excellent benefits. Re-location assistance. Ref. 614

Electronic Engineers

Wilt

£7-13K

Expanding company manufacturing advanced communications and business systems equipment requires several engineers at junior and managerial levels. Openings exist in testing, QA, reliability assessment, VLSI methodology and electronic design. Applicants aged 25-40 years must have appropriate technical qualifications. Re-location assistance. Ref. 598

Programming - with a difference.

At Hambro Life we have a refreshingly different view of what application programmers should be doing.

We think they should be more than just coders. We believe a strong technical Programming Department is essential for the design and implementation of the computer systems which are so central to the administration of our business.

As a result of this philosophy we are building an extremely strong and professional Programming Department which offers unlimited growth to programmers wishing to build technical careers.

Central to our applications software development is the use we make of IBM's database management system IMS - for example we have a network of logically related databases consisting of over 70 million segments. (Our IBM 3081 runs with 3380 discs using Xerox laser printers.)

But Programming at Hambro Life is also different because the company's different. Not content with its position as the country's largest unit-linked life company, and one of the top 100 companies in the U.K., it is now embarking on a programme of

diversification and expansion that offers growth opportunities for everyone.

All this activity means that we need more high-quality programmers to join our young professional team. We need people at a variety of levels, with salaries ranging from:

£12500 up to £15000 plus car

We are looking for people with at least 4 years solid application programming experience, preferably in an IBM PL/I environment (but we frequently retrain COBOL users).

Starting salary will naturally depend on your experience, ability and potential. In addition, our first-

class benefits package includes non-contributory pension, profit-sharing and share option schemes, free life cover, BUPA, and generous assistance with moving to this attractive part of the country.

Send now for our explanatory Programming booklet and an application form, or call (0793) 46700 (24 hour answer phone).

Please send me your Programming booklet and an application form.

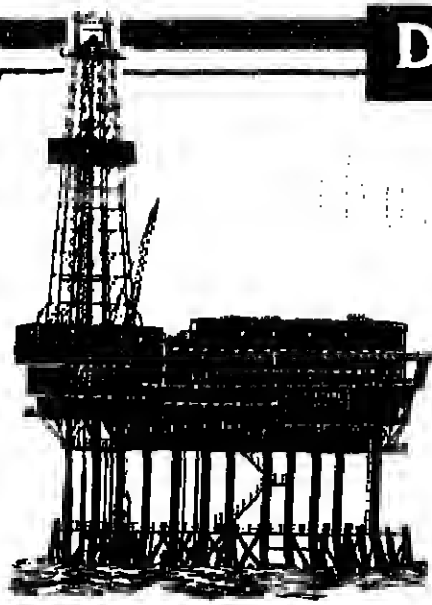
Name _____
Address _____

Post to: Linda Hobbs, Hambro Life Assurance plc, Hambro Life Centre, Swindon, Wilts. SN1 1EL.

HAMBRO LIFE

One of the top 100 companies in the U.K.

Data Acquisition, Control & Monitoring



A prime factor in any major project is a structured plan for its future development. The same principle applies to your career. Our client, a world leader in their field, can offer opportunities for significant career development in the following areas:

Reporting to the R & D Manager, the successful applicants for these two newly-created positions will take full responsibility for new software and hardware systems respectively. We are looking for young, energetic, innovative people with at least 5 years experience of computer systems development, including management of at least one significant project in the process control or telecommunications industries. Rewards are high and applicants will be expected to show solid evidence of their abilities.

Probably between 30 & 35, you will already have several years experience of management, staff selection, customer contact and inter-departmental liaison. You will be fully familiar with product and project planning and list energy, self-motivation and diplomacy amongst your attributes.

The company is young and successful with a record of rapid yet secure growth. Operating on a world-wide basis, it is committed to major development of existing well established systems including the introduction of state-of-the-art micros and UNIX based software. However, its dynamic organisation includes the intention and capability of diversification into new and promising markets. If this sounds like your type of working environment, call H. R. Associates now for further details. It could be just what you've been looking for!

Evening & Weekend Telephone Numbers:
Terry Harvey - Great Missenden (02406) 4705
Brian Coates - Chesham (0494) 783722
John Barker - Camberley (0276) 61297

HR

H. R. Associates Limited

Executive, Computing and Technical Personnel Consultants
57a Hill Avenue, Amersham, Bucks, HP6 5BX. Tel: 02403 28383
London Office: 0706 5001

HR

IBM COBOL IMS PROJECTS

SOUTH HAMPSHIRE & OTHER UK LOCATIONS
£9,000-£11,000

Our client provides a complete data processing service to a major UK group of companies based upon dual IBM OS/MVS mainframes with IMS DB/DC and a large teleprocessing network.

A major new IMS system is currently in the early stages of development and the company now seek to recruit SENIOR PROGRAMMERS and PROGRAMMERS for this challenging project.

If you can offer at least eighteen months IBM COBOL ideally including some exposure to on-line database software you could be given the opportunity to specify and develop new IMS batch and real-time programs. Successful applicants can look forward to a variety of commercial and manufacturing applications development.

Initial interviews for these positions will be conducted in the Hampshire area or at one of the other UK locations; but in the first instance write or telephone DP Selection Services to learn more about these opportunities, quoting reference W9221.

01-434 2042

dp SELECTION SERVICES

75 Walkers Street, London W1R 7HT
"We look forward to hearing from you."

Join our action force

We're Palitoy, the UK's leading toy manufacturers, makers of such famous names as Star Wars, Action Man - and Action Force, of course. Our own Action Force of dedicated DP professionals is expanding to cope with a major development programme on interactive systems based on IBM 38 - and we're currently looking for additional troops (male or female) to join us.

Operations Manager

We now require an Operations Manager, with proven managerial ability to lead a team of 12. Educated to 'A' level standard preferably with a working knowledge of IBM System 34/38.

O and M Analyst

To analyse and appraise our existing systems to ensure that users are adequately trained and that procedures are followed. In addition, the person appointed will assist in the design of new interactive systems and be responsible for ensuring all documentation is accurately maintained during this period of intensive systems development. A background in DP work and considerable O and M experience as applied to computer systems is essential.

Analyst/ Programmer RPG II/III

To develop interactive systems on our IBM System 38. We require a minimum of 6 months' GSD experience, combined with analyst/programming experience, using RPG II/III.

In addition, a knowledge of COBOL and BASIC would be an advantage. Good communicative skills are essential to liaise between user and development staff. As a successful and progressive company we can offer competitive salaries together with attractive employment conditions and relocation where appropriate. Interested? Think you can handle the challenge? Then write or telephone for an application form to:

The Personnel Department, Palitoy Company, Owen Street, Coalville, Leicestershire. Tel: Coalville 36388.

Palitoy

PUTTING TOGETHER THE ASDA TEAM. THE BUILD-UP CONTINUES.

Project Managers

Apart from your technical expertise (developing on-line database systems on IBM mainframes, preferably using MVS and IMS) you will need the skills required to first build then manage a team of up to 15 people, to plan projects and deliver on time and to communicate with all levels within the company. Current project managers and senior analysts with commercial backgrounds (retailing an obvious advantage) should bear in mind that working for large, growing, successful companies means having a lot of scope, plenty of projects and a secure and stimulating future.

Which leads us to 'Why should I consider working for Asda?'

Asda Superstores

Size, growth and commitment
Asda is growing in a growth business. Turnover is up to £1.3 bn, we have 73 superstores and 18 stores (and rising) selling 27,000 different items, we employ over 20,000 people... and - of importance to you - we're committed to ensuring our information systems keep pace with the general growth.

Up to £14,100 plus car
Generous relocation expenses
Share Option Scheme
Training programme

The Strategic Plan
Recently this has meant a close look at how we will satisfy future needs. We call it the Five Year Strategic Plan. Since then we have been installing IBM 383 processor and we're introducing EPOS into more of our stores.

However, very few programs are being converted. Instead we are writing new applications - largely for new on-line database systems - some of which will involve the Information Centre also being developed.

The benefits of working for Asda
Head Office Computer Centre is close to Leeds, in West Yorkshire. Communications are excellent in every direction which means easy travel to work from a wide area. The countryside can be stunning - as can the house prices!

Salary apart, there are many large-company benefits including the chance to participate in our success.

Your next move?

This is an exciting opportunity to join a team of people, with strong top-level management commitment, who will revolutionise information systems in a successful and growing company.

To receive an application form and information pack, telephone our consultants, McCourt Cousins Ltd, on Reading (0734) 595346, or write enclosing full CV to McCourt Cousins Ltd., 27-29 Greyfriars Road, Reading, Berks.

Interviews to be held regionally.

COMPUTER ENGINEERS

Outstanding opportunities to join progressive companies expanding rapidly in the UK and European computer industry.

Field Engineers - Basic to £10K + O/T 88p. Car etc. Experience of recognised micro (800 DEC etc) + associated peripherals. London, Home Counties, Birmingham and Glasgow.

Work Shop - Supervisor £10K +. Engineers £8K +. Faultfind and repair to discrete level to support expanding "hungry" field team. Recognised hardware. London and Home Counties.

Whatever your objective, expand your career. NOW. Ring Mike Hill on 01-548 8441 (office) or 01-594 2289 (outside office hours and weekends, etc).

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SENIOR ANALYST/PROGRAMMERS

IPC Magazines has currently 2 vacancies for Senior Analyst/Programmers for its Computer Development Department.

Hardware being used consists of a PRIME 750 and two PRIME 550's. All systems are written in FORTRAN utilizing MIDSPLUS and in-house screen-handling routines.

These positions require a minimum of four years' FORTRAN experience in a commercial environment. One post is in the financial accounts field and a good knowledge of ledger systems is essential. The other post involves order-processing and an in-depth knowledge of PRIME software is required as well as the appropriate commercial knowledge. For both positions the ability to communicate clearly and effectively is essential. The successful candidates will be expected to make a significant contribution, and be responsible for the success of these systems.

Benefits include a 32-hour week, subsidised canteen/restaurant, good working conditions and discounts on Company products.

Written applications with career details to: Mr. S.A. Donaldson, Systems Development Manager, IPC Magazines Ltd, King's Reach Tower, Stamford Street, LONDON SE1 9LS. We are an Equal Opportunities Employer.

ipcmagazines

Senior Systems Analyst

Data Base Specialist
ICL 2957 - IDMSX
£14,220-£17,236 inc.

The Electricity Council have decided to enhance their computing facilities, currently GEC, TI and CEBG Bureau (IBM), by taking delivery of an ICL 2957 configuration and the Council are seeking an experienced Data Base Specialist to join a small team implementing an integrated computing and office systems strategy for Information Technology.

You should possess:

- ☐ A degree or equivalent professional qualification.
- ☐ Several years computing experience together with experience as a systems analyst responsible for design and implementation of on-line systems.
- ☐ Proven ability to implement on-line Data Base applications with IDMS or IDMSX preferably under VME.
- ☐ Knowledge of Data Base techniques including data analysis, logical design and physical design. Knowledge of ICL 2900 Range, Cobol, Data Dictionary are considered essential and knowledge of TPMS and Query languages desirable. Appropriate training could be made available.
- ☐ Experience in leading multi-disciplinary project teams and ability to communicate successfully with users and application development staff is essential.

Please write in confidence, giving details of career to date and present salary quoting Ref: 81/CW to:

David Webb, Recruitment Officer,
The Electricity Council,
30 Millbank, London SW1P 4RD.

ELECTRICITY COUNCIL

DALROTH RECRUITMENT CONSULTANTS

LONDON BASED BASIC SALARY £ NEGOTIABLE

Dalroth & Partners is one of the leading International recruitment organisations with assignments currently in the Middle East, Europe and the USA, the majority of which are undertaken on an exclusive basis from initial definition of job specification through to assistance with shipment of families and their effects for many of the overseas appointments.

Consultants joining us at the present time should be capable of assuming full responsibility for recruitment assignments and will be encouraged to build client relationships leading to total account management.

Activities include job and person specifications, advertising copy/layout/placement, screening/shortlisting from advertisements and computer-based candidate files, reference checking, visas, etc.

Currently there is great scope for client development in the UK as well as abroad for both permanent and contract appointments.

Essential is the personality and determination to establish successful client relationships. Experience in either a DP or recruitment environment combined with a Sales/Marketing background would be ideal.

An excellent package will be offered, the format of which is negotiable.

For further information please contact either Roger Allington or Jenny Dalrymple Hay, day on 01-483 2947 or weekends respectively Little Gaddesden (044284) 3535, Beaconsfield (04848) 4679 quoting Ref. 5009.

DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON, W1. Tel: 01-483 2947

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With a state-of-the-art switching matrix recently launched, you will spearhead the company's drive into the systems area.

You will act upon leads generated by the field and internal sales team and take responsibility for these major orders. A sound understanding of systems selling is required, ideally in a communications environment.

Both positions offer ambitious sales professionals a superb opportunity to join a dynamic, committed team in which everyone achieved target last year; the remuneration package allows for high base salary, executive car, BUPA, and exceptional commission and incentives plans. Above all, there is the opportunity to develop into management positions within a successful, growth orientated company.

For further information, call Paul Child on Windsor (07535) 56155 or write to:
Kramer Westfield Associates Ltd, 23 Victoria Street, Windsor, Berkshire SL4 1HE.

Kramer Westfield

UNIVERSITY COLLEGE LONDON Computer Centre

PROGRAMMERS

We are looking for a number of PROGRAMMERS to join teams writing software for a service based on linked GEC 4180 computers, providing predominantly keyboard access for staff and students. The Centre is enhancing both the local services and its associated networking facilities and is seeking programmers with an interest in operating systems, telecommunications, compiler maintenance, graphics or scientific applications software. A relevant degree or equivalent professional qualification is required. Salaries will be paid on academic related scales, up to £12,801 (including London Allowance). The initial salary will depend on qualifications and experience.

Applications (no special form) including full c.v. and the names of two referees should be sent to: Computer Manager, University College London, Gower Street, London WC1E 6BT by 30 September, 1983. Further information can be obtained from the above address or by telephoning 01-388 6721.

(0508)

POLYTECHNIC OF THE SOUTH BANK Borough Road, London SE1 0AA

COMPUTER SERVICES DEPARTMENT

Application Programmer (2 posts)

Salary up to £9,258 per annum inclusive of London Allowance (Ref. CS131)

Vacancies have arisen within the Computer Services Department for two Programmers in the User Support team to install software packages, develop new software, amend existing software and contribute to the programming advisory service offered to students and staff.

The persons appointed will be of graduate level with a minimum of two years' programming experience in at least two languages. Experience of OEC 10 or VAX Systems would be an advantage.

Application forms and further particulars of these posts are available from the Staffing Union, Tel. 01-528 8988, Ext. 2255.

Closing date for receipt of completed application forms will be October 6, 1983.

(0263)

sandwell

Metropolitan Borough Council

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EDUCATION DEPARTMENT (LIBRARIES AND MUSEUMS SERVICE)

COMPUTER SERVICES LIBRARIAN

Grade SO 1/2 £9,066 to £10,538

Sandwell Library Service is considering the introduction of an integrated online and on-line computerised system for circulation control, stock control, acquisition and cataloguing. The postholder will be responsible for the necessary investigation of the project and implementation. It is anticipated that the appointment will initially be for a period of two years.

Applicants must have considerable experience in staff management of public library computer operations at a senior level, together with the ability to plan, organise, negotiate with suppliers and effectively manage a project of this nature.

A thorough knowledge of public library systems and developments in the new technology is required, together with the ability to work under pressure. Minimum qualification for this post is Association of Librarianship, or appropriate equivalent.

Closing date: 7th October, 1983

Requests (quoting Ref. No. 488 and enclosing S.A.E.) for application forms and further details should be made to the Personnel Officer, Town Hall, West Bromwich B70 8DX. A Union Membership Agreement is a pre-condition. Canvasing of members of the Authority will disqualify.

(048)

COMPUTER PROGRAMMER

The British Gas Data Network provides the vital link between ICL 2971 and UNIVAC 1100/61 computers of the London Computing Centre and British Gas offices throughout the country. It has recently undergone a period of considerable growth and is now ready for a further phase of expansion - which will involve the installation of local networks at various British Gas sites. As a result, there is now an existing opening for a telecommunications specialist to join the network control section, based at Fulham.

Duties of the position include:

- Fault diagnosis and repair
- Equipment commissioning and installation
- Network planning
- Evaluation of new equipment
- Performance monitoring
- Travel to the various locations will be necessary.

Applicants should have at least five years' experience in a computing environment with a minimum of two years in data communications and, ideally, a degree.

The salary is in the range £9,125 - £10,480 (including Inner London Weighting) and benefits are those normally associated with a large progressive organisation.

Please write with full career details, and quoting reference EP/123501/CW, to: Assistant Personnel Manager (HQ Services), British Gas, 59 Brynston Street, Marble Arch, London W1A 2AZ.

(0832)

Yusuf bin Ahmed Kanoo is one of the most experienced and widely established Group of Companies in Saudi Arabia, Bahrain and the United Arab Emirates employing a multinational staff. The Group's various Divisions are Freight Services, Travel, Machinery, General Trading, Joint Ventures, Aircraft Handling, Business Services and Property.

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Bahrain
c. £21,000

Our Computer Services Department is currently engaged in the implementation of on-line facilities with over 80 VDUs and printers.

Due to promotions and expansion we are seeking a Computer Services Manager. The successful candidate is likely to be aged 30-40 years, with a Post-Graduate qualification or membership of a professional body and ten years data processing experience which must have provided practical experience in COBOL programming, systems analysis and telecommunications associated with the development of on-line systems as well as a minimum of four years experience in the management of a medium to large DP facility.

In addition to the tax-free salary will be a car allowance, a contributory Provident Fund, free furnished accommodation and excellent terms of service.

Applications with c.v. to:—
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Yusuf Bin Ahmed Kanoo

(0570)

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LONDON SW6 up to £10,480

The British Gas Data Network provides the vital link between ICL 2971 and UNIVAC 1100/61 computers of the London Computing Centre and British Gas offices throughout the country. It has recently undergone a period of considerable growth and is now ready for a further phase of expansion - which will involve the installation of local networks at various British Gas sites. As a result, there is now an existing opening for a telecommunications specialist to join the network control section, based at Fulham.

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Please write with full career details, and quoting reference EP/123501/CW, to: Assistant Personnel Manager (HQ Services), British Gas, 59 Brynston Street, Marble Arch, London W1A 2AZ.

BRITISH GAS

Sales and Marketing Guildford based

Our client is a new software house, which is part of a group that may be fairly described as a "household name." The company will be providing a wide range of solutions to business problems, including consultancy services, bespoke software, applications packages and hardware (both mini- and micro-computers) within specific vertical markets. It is intended that these markets should be Property Management, Commodity Broking and Export Shipping.

The persons recruited to these positions will report to the Marketing Director and must be able to grow with the company, as the UK becomes regionalised and in need of Regional Managers and Managers of teams of sales personnel.

Basic salaries will be around £12,000 p.a. but the on-target earnings quoted will, in fact, have no upper limit.

Please contact Joan Ainsworth on 01-681 8311 or write to her at Computer Search & Selection, 6th Floor, Carolyn House, Dingwall Road, Croydon, Surrey CR0 9XF.

Turnkey Systems

on target earnings c.£20,000 + car

If you can prove that you are already very successfully selling turnkey solutions to business problems, we should like to hear from you. While by no means an essential requirement, experience of IBM and/or DEC kit would be of particular interest.

Micro-computers

on target earnings c.£20,000 + car

The company will be offering a selected range of micro-computers, including the "SIRIUS" and is looking for a proven track record in micro-computer sales. Initial markets will be in the field of export documentation and general accounting and, while experience in these areas would be useful, the major requirement is the proven ability to sell micro-computers.

Computer Search & Selection



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Sainsbury's computing is going through an exciting period of change with new equipment and major new projects. In order to maintain rigorous quality assurance standards and provide a basis for the future, Sainsbury's are introducing a new systems development methodology and new technical standards to support it.

The vital importance of these standards has been recognised by the creation of the new post of Standards and Methods Coordinator. The role will be to coordinate the introduction of the new methodology and train staff in its use; to develop, implement and maintain the system standards and to design and implement the supporting documentation.

The successful applicant will be an 'Allrounder' and have had a broad-based career with a minimum of six years experience of programming and systems development. Knowledge of O & M techniques and some project management would be beneficial.

Added to this solid background must be an understanding and belief in the need for standards and the communication skills and credibility to put the message across. The post will be located in Central London and the excellent benefits package will include a salary of up to £13,500 pa, share option and bonus schemes (after a qualifying period), contributory pension scheme, interest free season ticket loan, a subsidised restaurant and BUPA.

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Honeywell GCOS, IDS, TDS, COBOL
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URGENT

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ICL VMEB IDMS, all levels, some with TPMS
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ICL VME COBOL Progs
ICL VMEB IDMS Prog
Software Engineers
IBM MVS Operators

Contact: NEIL SMITH, DAVE PARKER
or KAREN LONGCROFT

OVERSEAS 0252 516141

HOLLAND

Contact: BILL EVANS - October start
Data Analyst - any DB (Ideally Adabas/IDMS)+MUMPS
Progs/Analysts with MUMPS
Senior Analyst/Prog (Proj. Leader level) - design and programming exp. in RTL 2 (Ideally VAX exp. in process control environment.)

SAUDI ARABIA

Contact: BILL TORBITT or BILL EVANS - Oct/Nov start
Analysts and Progs - IBM MVS, PL1, ADF, IMS
Systems Prog - PDP11 and DG Ealipse
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- retraining in USA and opportunities to move into sales

USA

Contact: STEVE WHITING
Urgent requirements for Programmers in Chicago,
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IBM COBOL with IMS or DL1
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IBM OS MVS JFS OPS.
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Contact: ALAN PAINE, MARK ATKINSON
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BUSINESS ANALYST/SENIOR SYSTEMS ANALYST with good financial experience for a major development site in Essex. £13K + excellent benefits package.
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MANAGEMENT & EXECUTIVE SELECTION

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Floating Point Systems, designs, manufactures and markets a range of Array-Processors - special purpose computers.

They are the undisputed market-leader, providing low cost, high speed additional computing power to IBM,

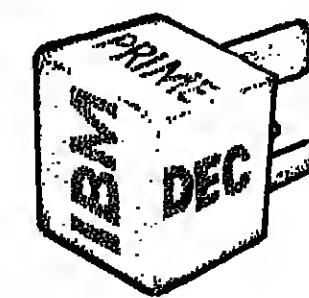
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DEC, Hewlett-Packard, Prime, mainframe and mini users alike.

Supporting both hardware and software the Customer Services Division is a

SOFTWARE ENGINEERS

Applicants should be fully conversant with IBM VM/MVS or VM/CMS or DEC VMS. Fortran knowledge is required.



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Meeting
Point

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- ★ £10-£13K neg
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The successful candidate will have several years' experience maintaining mini/mainframe systems, component level ability and an interest in software.

- ★ 2-litre car
- ★ BUPA
- ★ 23 days' holiday

MANAGEMENT & EXECUTIVE SELECTION

(06920)

ASSEMBLER PROGRAMMER/ANALYST

OCR SCANDATA LTD, one of the world's leading suppliers of sophisticated Optical Character Recognition equipment is looking for a Programmer/Analyst to join their Systems Support Team based at Haunslog.

This is an interesting and varied position where you will be providing technical support in an environment that is centred around the successful demonstration and implementation of the company's products. You will have the opportunity to enhance your technical knowledge in the

Sales Support Role
Middlesex
to £9,500 + Car

development of customised software, as well as broadening your experience by being directly involved with clients in a technical support role.

If you have around 2/3 years of Assembler programming, the ability and confidence to communicate effectively, are willing to travel and are looking for the chance to further your career within an organisation enjoying a high degree of success, please contact Hugh Macer on 01-734 9723 or 01-581 5829 evenings or weekends.

Operator? Programmer? Systems Engineer? Get more out of life as a SYSTEMS CONSULTANT

c. £10,000 + bonus + 1.6 GL car Opportunities in London, the Home Counties, Manchester

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We're a major force in the office systems market, with an established client base, a fast-expanding product range featuring very advanced software and an unsurpassed reputation for technical support. Our business has increased by over 60% in the last 3 years, and our corporate goals are to maintain this growth pattern over the next 5 years.

This success, coupled with the ever-increasing importance attached to our highly professional sales support function, has created these rewarding opportunities for ambitious young men and women with the 'people' skills to match their technical expertise, and the drive to undertake key customer-contact roles.

Your wide-ranging brief will include everything from advising on system design and configuration, to solving

applications/communications problems, to demonstrating and installing hardware and software: in short, providing a comprehensive sales support service.

It's a role that offers variety, responsibility, considerable freedom, and total involvement in the systems solution. Beyond this, excellent career opportunities exist within the group.

Our excellent package includes quarterly-paid bonus, 1.6 GL car, free health insurance, life insurance and pension scheme. Relocation assistance may also be available in appropriate cases.

Talk it over with your prospective boss!

To discuss the job in more detail, call David Kirk, Regional Marketing Services Manager, on 01-587 0882 during office hours, or 084 07 0888 on weekday evenings between 7 and 9 pm. Or, if you prefer, you can write to him at Wordplex Limited, 571 Huston Road, London NW1 5AR.

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RPG II/RPG III Analyst/Programmer Programmer

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We are a household name in the leisure industry using micro-processor based technology. We have subsidiary Companies in the USA, Holland and Australia and export our products to many parts of the world.

We have recently upgraded our hardware to an IBM System 38 and are currently embarking on a new development to implement manufacturing systems using MAAPICS.

You should be an Analyst/Programmer or a Programmer with a minimum of two years experience, ideally gained in an IBM System 34 or System 38 environment and with fluency in RPG II. Any exposure to RPG III would be a distinct advantage.

The remuneration package includes a pension scheme, and 23 days annual leave. We also offer excellent Company social activities.

To arrange a prompt and confidential interview, please telephone our Advising Consultant **Jim Mitchell** on **021-236 3761** (24 hour answering service) or 021-455 7653 (Evenings till 9.00 pm).

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INMOS has already established design and market leadership in VLSI memories. Now we are poised to enter the microprocessor market with a range of innovative products for "next generation" systems.

INMOS transputers exploit the capabilities of VLSI by providing a powerful processor, substantial RAM and interfaces on a single chip. Networks of transputers are engineered and programmed using occam – a new programming language, which we have designed for real time and multiprocessor systems.

Development of this range of products is taking place at our UK Technology Centre in Bristol. We have already introduced a number of occam software products and silicon design of the first transputer products is at an advanced stage. Our rapidly expanding activities have created further exciting and rewarding opportunities for both hardware and software specialists to join us at Bristol.

Computer Aided Design

To help solve the problems of designing VLSI chips containing over 1,000,000 transistors, we have developed a unique hierarchical design system which provides sophisticated graphics for creating layout and mixed mode circuit simulation on an MC68000-based workstation.

Software specialists with experience in graphics, system programming and numerical programming – preferably in BCPL – are required to work on further development of this system.

Transputer Development Environment

The development environment product range will enable users to design transputer systems using occam and other programming languages, and also make occam available on a range of micro-processors. A key part of our product strategy, they incorporate the latest ideas in interactive user interfaces, including editing, language representation and program compilation and debugging.

Computer Scientists with system programming experience are needed to join the teams developing these products.

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The transputer enables new and innovative solutions to be applied to the problems of production testing and systems development.

Electronics Design Engineers with experience of high speed digital electronics are required to work on the design of high performance micro-processor development systems and test equipment.

VLSI Products

MOS Design Engineers are required to work on the System, Logic and Circuit design of VLSI micro-processors, peripheral chips and high performance memories.

If you meet our very exacting requirements, we can offer a combination of technical challenge, creative environment and high rewards which is unmatched in the UK semiconductor industry. Salary will not be a problem, the benefits package is excellent and generous assistance will be provided to relocate you to this attractive part of the West Country.

Telephone for an application form or send a full CV including details of qualifications, experience and salary to: Jacqui Porter, Personnel Services Manager,

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The name for the future

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PROGRAMMERS C.£10K Central London

The Fraser Williams Group is one of the country's foremost Computer Services organisations providing extensive project oriented DP services to commerce and industry.

To maintain the growth of the Fraser Williams London Company, we require career minded programmers, capable of working with minimum supervision and who would enjoy the challenge and variety of work which we can offer.

The essential qualities are:

- ★ 18 months + experience in one of the following: RPG II, preferably IBM S.34 COBOL, with significant period on VAX.
- ★ A good academic background.

We are also interested in talking to people with experience of other commercial languages in a minicomputer environment.

In return we offer:

- ★ Training and the opportunity to work on a range of minicomputer hardware (DG, WANG, DEC, HP, etc).
- ★ Genuine career advancement for the ambitious.
- ★ Wide commercial experience with a variety of clients.

For further information write or telephone Bernard Taylor on 01-930 4041 during office hours or Heyling Island (07016) 66768 evenings.

**Fraser Williams
Recruitment & Training**

19 Charing Cross Road,
London WC2H 9ES.

Deputy DPM Kingston-upon-Thames

c.£13,500+car

Our client is the management services department of a very well-established international company, based at Head Office, providing software products to the Group. The department already has a good reputation within the company, having successfully implemented many major and minor projects. Most projects are database, on-line and communications-based, written in COBOL.

Because of Group commitments, the DPM now needs someone to deputise for him in his absence. This person must be able to assume responsibility for systems analysis, programming, operations and data-preparation in a department of about 20.

Someone with a practical approach to the solution of business problems is required, with a cost-conscious awareness of budget constraints. The ability to work closely with senior managers (including Directors) must be coupled with a willingness to tackle day-to-day problems "hands-on" if needs be. A background in systems analysis, COBOL programming and team leadership is needed.

Please contact Joan Ainsworth on 01-681 8311 or write to her at Computer Search & Selection, 6th Floor, Carolyn House, Dingwall Road, Croydon, Surrey CR9 9XE.

**Computer Search
& Selection**

Real-Time Software Programmers to Team Leaders ...and Systems or Hardware Engineers

East of Bournemouth £9000-£14000 plus full relocation

If you can offer three or more years real-time Software Programming/Design on minis or micros, using a block structured language such as CORAL, PASCAL etc., or ASSEMBLER, preferably in a defence, industrial or scientific environment then read on, we will probably be interested in you.

There is a range of exciting positions at all levels in the Software Group of this successful company specialising in Command, Control and Communications systems. You can look forward to performing demanding roles on projects in the following and other areas:-

- * X25 Packet Switching
- * Command and Control
- * Diagnostics
- * Network Control
- * Real Time Communications
- * Distributed Database

Obviously, knowledge in any of the above mentioned areas would be of particular interest.

OPEN EVENING

Caledonian Hotel
Princes Street
Edinburgh

Tuesday 27th September
4.00-8.30 p.m.



SYSTEMS AND HARDWARE ENGINEERS....

there may also be opportunities for you if you have two or more years sound experience. Please contact Myriad or turn up to the Open Evening for further details.

If you are within reach of Edinburgh please come along to the Caledonian Hotel, where you will be able to meet our client's technical staff informally and have a drink and a bite to eat. If possible please contact Myriad to say that you will be turning up.

Those who are interested, but cannot make it on Tuesday, can obtain an information pack on the opportunities and the wide range of benefits available by either telephoning Myriad on (0734) 591151 or by completing and returning the FREEPOST coupon.

I am interested in the following position:
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ICL VME 2900 COBOL DMS AND/OR TPMS ANALYST/PROGS.	- LONDON, BEDS, BERKS
ICL VME 2900 SYSTEMS PROGRAMMER	- SURREY
ME 28 TME TP COBOL DMS PROGRAMMERS	- LONDON, BERKS
TANDEM GUARDIAN COBOL DESIGNERS & PROGRAMMERS	- LONDON
IBM TSO JES2 COBOL PROGRAMMER	- YORKSHIRE
IBM SYSTEM 38 RPG II ANALYST/PROGRAMMER	- STH COAST (29/8 START)
DATA GENERAL BUSINESS BASIC PROGRAMMERS	- WEST LONDON
DATA GENERAL COBOL PROGRAMMERS	- SURREY
BURROUGHS 6800 MCP CANDF GEMCOS COBOL DMSH PROGRAMMER	- SURREY
HP 3000 IMAGE QUERY COBOL PROGRAMMERS	- WEST LONDON
VAX SYSTEL COBOL PROGRAMMERS	- SURREY
SOFTWARE TECHNICAL AUTHORS	- LONDON
BABBAGE OR ASSEMBLER TECHNICAL PROGRAMMERS	- HERTS

Contact Loraine, Lynne, Wendy on 01-948 5922 (weekdays) or contact Loraine on Welton-on-Themes 245552 evenings or weekends

PERMANENT OPPORTUNITIES

PROGRAMMERS AND ANALYSTS

To £13,500 + car

Berkshire

A major national group is currently looking for experienced IBM Analysts and Programmers. Based at the new headquarters in Reading you will work within Manufacturing, Sales and Marketing or Financial Systems. Knowledge of CICS/DLI and Remis would be advantageous. Quote Ref. 8063/CW

ANALYST/PROGRAMMER

To £13,000

North London/Home Counties

Having completed the conversion from IBM System 34s to a System 38, this leading insurance company is looking for an experienced RPG II Analyst/Programmer. You will be involved in the development of new financial aid reporting systems and for ensuring continuing user support. Quote Ref. 8186/CW

MICRO SPECIALISTS

£12,000+

London

Established over ten years ago, this software house/OEM is now looking for three micro specialists. The company is developing software for the 16 bit range of machines and would expect applicants to be able to perform sygens and be "fluent" in C and Fortran under Unix. Quote Ref. 8207/CW

ICL SYSTEMS PROGRAMMER

£11,000

Surrey

The management services division of an international electronics company is currently looking for an experienced ICL Systems Programmer. Working in a small specialist team you will be responsible for capacity planning and systems tuning as well as the support of VME 2900 and ICL utilities. You should have at least two years' SCL and Cobol experience. Quote Ref. 8219/CW

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A large manufacturing company in Essex is totally committed to new systems development in the manufacturing/commercial area. The hardware is IBM 4341's running under DOS/VSE with extensive use of CICS/DLI and VSAM and VTAM. You should have had at least three years' relevant IBM experience and be looking for a career move into a company which is strongly DP orientated. Quote Ref. 8205/CW

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SYSTEMS PROGRAMMERS	TO £18,000
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Please contact David Mason Johns at KPG or on 01-747 0989 during the evenings or at weekends.

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DEC VAX/VMS
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CONTRACTS

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6 MONTHS+ GOOD RATES

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Southdata is a leading micro software house. We're looking for a programmer with some years of systems experience to work on our successful database management package SUPERFILE in a young office in Lond W.11.

We want either 'C' or Assembler or both. If you want to become a 'C' programmer, this could be your chance.

Salary up to £12.5K. Send cv and two references to:

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£12K + CAR + US Manufacturer, broad applications, mini to mainframe - opportunities for all levels of engineers who demonstrate enthusiasm - higher salaries for experienced engineers.

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Excellent opportunities exist with our clients - leading names in the Mini and Data Communications sectors of the industry.

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To sell Data Communications Equipment in the South East and London. On a £24,000 plus car, etc. Ref. 128

SALES EXECUTIVES
For Data Terminals and Network Sales in East Angles, Southern Counties, Northern Counties. Good basic on-quota earnings £20,000 plus car benefits. Ref. 128

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Saudi Arabia To sell Data Communications equipment and set up Distribution Micro Systems. Excellent Tax-Free including accommodation. Ref. 130

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For UK subsidiary of leading US Manufacturer. Based S.W. London. £10,000 according to capability. Ref. 128

FIELD ENGINEERS
For Communications Systems - based Manchester and East Angles. Ref. 129

TEST ENGINEERS
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Based North London 2-3 years experience in Data Communications. Salary £10-12,000 plus bonus. Ref. 130

Please post your c.v. and any other relevant details quoting the reference no(s) to:

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Sales Managers, Dealer Sales Managers, Sales Executives Software Managers, Project Managers, Analyst/Programmers Field and Support Engineers.

LONDON, SOUTHERN HOME COUNTIES, MIDLANDS, NORTH, SCOTLAND

Business Computer Systems PLC are an established and expanding British Public Company with a constantly developing and very competitive range of Mini and Micro Computer Systems for commercial, business and professional use.

All systems are marketed complete with proven software application packages so that B.C.L. now have one of the largest and most satisfied customer bases in the country.

Sales, software and engineering support are provided throughout the U.K. from regional offices and a countrywide dealer network.

The Company has grown at the rate of 30% per annum over the past six years with a steadily increasing team of skilled professionals. Further people experienced in the Sale and Support of Computer Systems are required to join this successful team as a basis for further expansion. They are also interested to hear from competent young professional people willing to train and work for a Company that is expanding rapidly where you can create your own opportunity to begin a successful career in sales or support. Opportunities exist in all areas of the Company in most parts of the U.K.

Sales Managers

Have you the drive and enthusiasm to earn more than £25,000 p.a.?

High calibre people with a proven record in business computer sales and the ability to manage and motivate a highly professional sales team are required for these positions.

■ Target earnings £25,000 p.a.
■ Prestige company car
■ Non-contributory pension scheme and other company benefits

Sales Executives

VACANCIES EXIST THROUGHOUT THE U.K.

Join a team of highly paid professionals. Opportunities exist in all locations for enthusiastic and successful Sales Executives with experience in selling in the computer or related industries who can prove they have the drive and initiative to succeed in a market place where rewards are high.

■ Target earnings £22,000 p.a.
■ G.L. company car
■ Non-contributory pension scheme and other company benefits

Dealer Sales Managers

Computer Sales Executives with experience in negotiating, appointing and liaising with dealerships involved in selling computer systems to business and industry are required to expand an established dealer network.

■ Target earnings £25,000 p.a.
■ Prestige company car
■ Non-contributory pension scheme and other company benefits
Many dealers in the above network also have vacancies for suitably qualified Computer Sales Executives - in some cases opportunities exist for equity participation.

Computer Sales Executives to the Building and Construction Industry

MIDLANDS AND NORTH

B.C.L. exclusively market the Federation of Master Builders approved computer system. Opportunities exist for Computer Sales Executives with experience of the building and construction industry to sell this exclusive package in the above areas.

■ Target earnings £22,000 p.a.
■ G.L. company car
■ Non-contributory pension scheme and other company benefits

Software Managers

SOUTHERN HOME COUNTIES

From a very demanding position, successful Software Managers in B.C.L. derive enormous job satisfaction. Apart from a sound systems background, applicants must have the ability to direct and lead a team of technical staff under their control. Responsibilities include software support in pre-sales, project planning, systems development, installation and customer liaison.

These positions provide a very attractive salary, company car, non-contributory pension scheme and other company benefits.

Project Managers Analyst/Programmers

NORTH LONDON, SOUTHERN HOME COUNTIES, MIDLANDS, NORTH, SCOTLAND

A number of vacancies exist in the above branches for Software People with varying levels of experience in the following areas:

■ Project Management
■ Systems Analysis/Design
■ Customer Support
■ Programming

All positions attract good salaries and at Project Manager level include a company car. Responsibilities are varied and challenging and all provide excellent scope for career enhancement.

Field Engineers

GREATER LONDON, WEST MIDLANDS, GREATER MANCHESTER, SHEFFIELD, EAST MIDLANDS, GLOUCESTER

Increased demand for B.C.L.'s products and service has created vacancies in the above locations for experienced Mini and Micro Computer Field Engineers. Successful applicants can expect an attractive salary, company car, non-contributory pension scheme and other company benefits.

Technical Support Engineers

MILTON KEYNES

Engineers with experience of Computer Systems who are qualified to H.N.C. or H.N.D. level are required for the Company's Technical Centre in Milton Keynes. These are interesting and challenging opportunities and responsibilities include new product evaluation and field support. An attractive salary will be paid and benefits include a company car and non-contributory pension scheme.

VACANCIES ALSO EXIST AT THIS LOCATION FOR PCB REPAIR ENGINEERS

For more information on any of these positions offered by our clients Business Computer Systems PLC, please write with full career details to the address below or Telephone 061-236-1157 during business hours. Evenings until 9.00 p.m. telephone JEFF WALTON on 061-962-0002 or ROY TORRES on 0422-823153.

INTERFACE
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Manchester House, 86 Princess Street,
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Contracts



IBM

ANALYSTS - Feasibility experience
 IBM 3081 DOS VSE Assembler programmer - Hants
 IBM IMS DB/DC Systems analysts - Beds
 IBM 38 RPG III Programmers - LDN/Swansea - various
 IBM 8100 DPPX Cobol analyst programmers - Ldn
 IBM MVS ADA DL1 Cobol analyst programmer - Surrey
 IBM 370 MVS TSD/SPF Analyst programmer - Herts
 IBM PL1 DL1 Senior systems analyst with programming background - Ldn
 IBM System 3 Systems analyst - October - Middlesex
 IBM OS CICS Cobol programmers - South Coast
 RAMIS Contractors - Middlesex
 SAS Programmers - Middlesex
 IBM 38 RPG III - Ldn - urgent
 IBM 4341 DOS VSE RPG II Programmer - urgent
 IBM 370/158 MVS DL1 - Programming supervisor and database administrator
 IBM Hants - programmer - immediately

DEC

STOCK Control/inventory systems analyst - Herts
 VAX 11/750 VMS Datatrive Cobol analyst programmers - Ldn
 VAX VMS Cobol Programmers - Herts and Surrey
 VAX VMS Systel programmers - Surrey
 VAX 11/780 VMS Fortran programmers - Surrey

ICL

ANALYSTS - Feasibility experience
 ICL 2900 VME/IDMS Cobol Programmers
 ICL IDMS Senior database designers
 ICL IDMS Audit and quality assurance consultant
 ICL ME29 the IDMS Cobol analyst programmers
 ICL TDRS Analyst programmers
 ICL TME IDMS Systems designers
 ICL VME TPMS Senior analyst programmers
 ICL IDMS TPMS Analyst programmers and designers
 ICL VME Cobol analyst programmers

OVERSEAS

IBM 4341 DOS/VSE CICS DL1 Analyst programmer 18K tax free 12-month contract plus usual benefits - Kuwait
 DOS TO MVS conversion experienced programmers - Paris
 SEL 32 MPX and HP 1000 Fortran assembler application and system programmers to join our team in Brussels

SOFTWARE ENGINEERS

REAL TIME Programming using assembly language with Intel micro processors "C" or Pascal an advantage - Herts
 CORAL 66 Military applications - various Home Counties
 PDP/VAX RSX-11M/VMS Coral 66 - South Coast

HEWLETT-PACKARD

HP3000 Quiz Quick programmer - West Scotland
 HP3000 Rapid Cobol programmers - Ldn and East Anglia
 HP250 Image D/B Basic - urgent - Beds

OTHER

UNIVAC 1100 DMS TIP Cobol JSP programmers - Hants
 COMPUTER Automation OPUS 1 Trans Basic programmers - Scotland
 PRIME CDBOL Programmers - Ldn
 VENTEK Datapoint Programmers
 BURROUGHS 68.6000 DMS GEMCOS Cobol programmers - Herts
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Search Consultants

Lloyd Chapman Associates provide comprehensive and efficient assistance to clients in every aspect of the recruitment process, both in the UK and internationally. With successful operations in the Data Processing, Accountancy, Banking, Sales/Marketing and General Management disciplines, we are proud of the reputation for professionalism that we have gained. To satisfy the increasing demands for our services, we are now seeking to appoint two self-motivated individuals within our Data Processing Division. Your responsibilities will be varied, including establishing and maintaining firm client bases, advising on different methods of recruitment, the planning and management of advertising and search assignments and the marketing of selected people to new and existing clients. Ideally in your mid to late twenties you must have:

- either a provable record of success as a Recruitment Consultant in the Data Processing sector
- or a sound background in data processing with a desire to move into a selling environment
- plus energy, ambition and determination coupled with good interpersonal and organisational ability

Remuneration - the people we are seeking will be disappointed (and so will we!) if they earn less than £14,000 during their first year. A very attractive package, based on performance, enables a successful consultant to earn in excess of £25,000.

We are a young company - we expect our consultants to become actively involved in the running and organisation of the business and opportunities for progression into management are excellent.

To discuss these positions in more detail and in the strictest confidence telephone or write to David Lloyd.

Lloyd Chapman Associates

125, New Bond Street, London W1Y 0HN (01-499 7761)

The International Air Transport Association
 in Geneva is looking for a

MANAGER DATA CENTRE

The main functions will include:

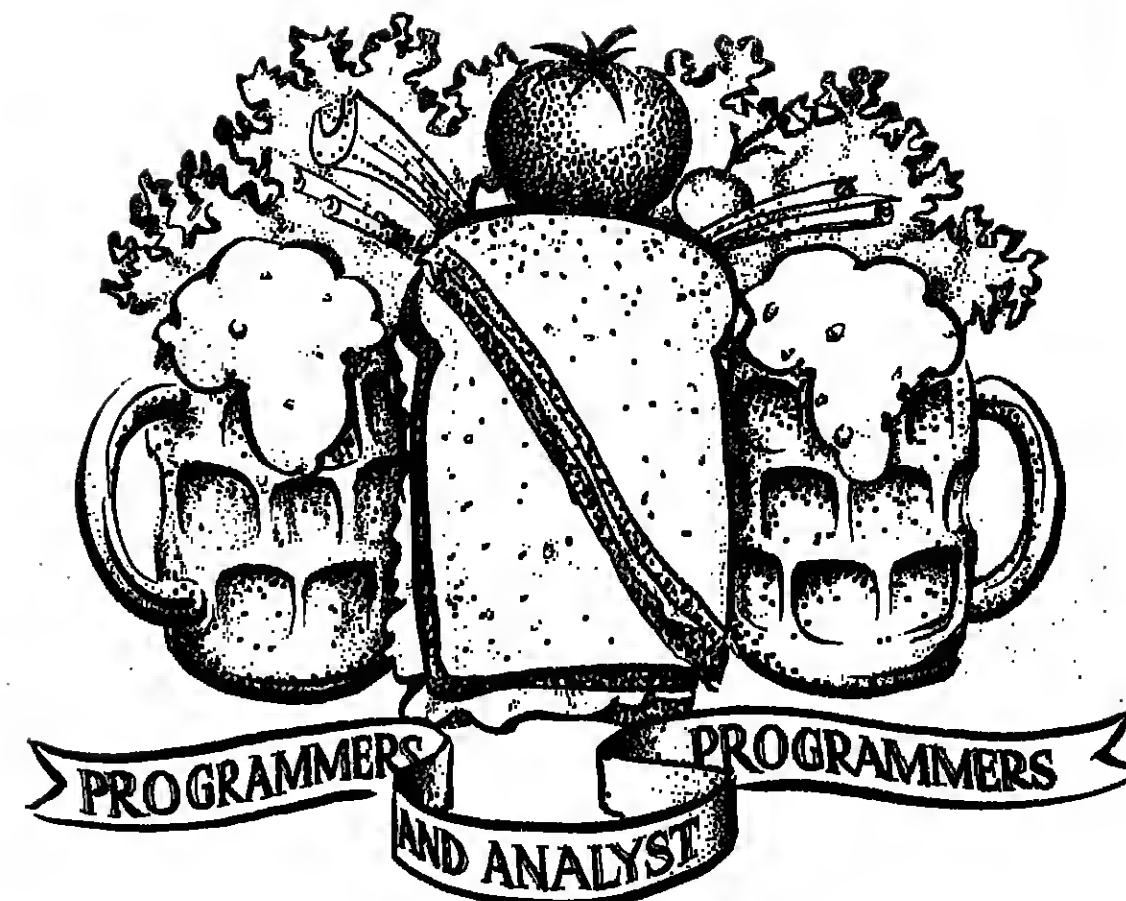
- administering a data centre consisting of a small technical staff with a PRIME 850 and MDS links to remote processors.
 - identifying internal automation opportunities and overseeing all phases of project work either by direct involvement or by assignment to third parties. Automation opportunities will cover all aspects of automation from word processing to data processing.
- The ideal candidate would have the following qualifications:
- At least 10 years' practical data processing experience in a business environment encompassing:

- application development from programmer level advancing through systems analysis to project management,
- central processing operations, distributed data processing involving network communications, intelligent terminals and stand alone micros.
- office automation involving selection of appropriate hardware and software, local area networks and incorporation of shared resources.

- Proven ability to organise and administer both projects and people.
- Experience with PRIME is not essential.
 The salary will be around Swiss Francs 75,000 tax free.
 Relocation expenses will be paid.



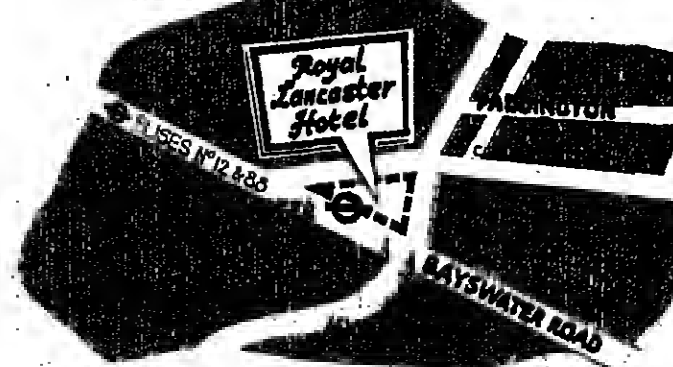
Applications, including curriculum vitae, should be sent to:
 Director, Personnel and Pension Administration
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 26 Chemin de Jolaville
 CH-1216 Cointrin/Geneva
 No later than 15 October 1983



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 a free beer and a sandwich
 at the Royal Lancaster Hotel
 on Tuesday, September 27th

... And not only a beer and a sandwich but the chance to discuss what could be the most important career development opportunity for you, so far.

DUN AND BRADSTREET, the world's leading supplier of business information services is establishing a new European Business Information Centre in Uxbridge, Middlesex. From a starting point of five countries the centre will provide computerised information services and products to the whole of Western Europe.



The installation will operate the latest IBM hardware, with MVS, CICS and IDMS.

COBOL mainly and ASSEMBLER are the programming languages which will be used for the development of sophisticated on-line and batch systems to process, manipulate and distribute the data.

ANALYST PROGRAMMERS (TO £13.5K)
PROGRAMMERS (TO £12.5K)
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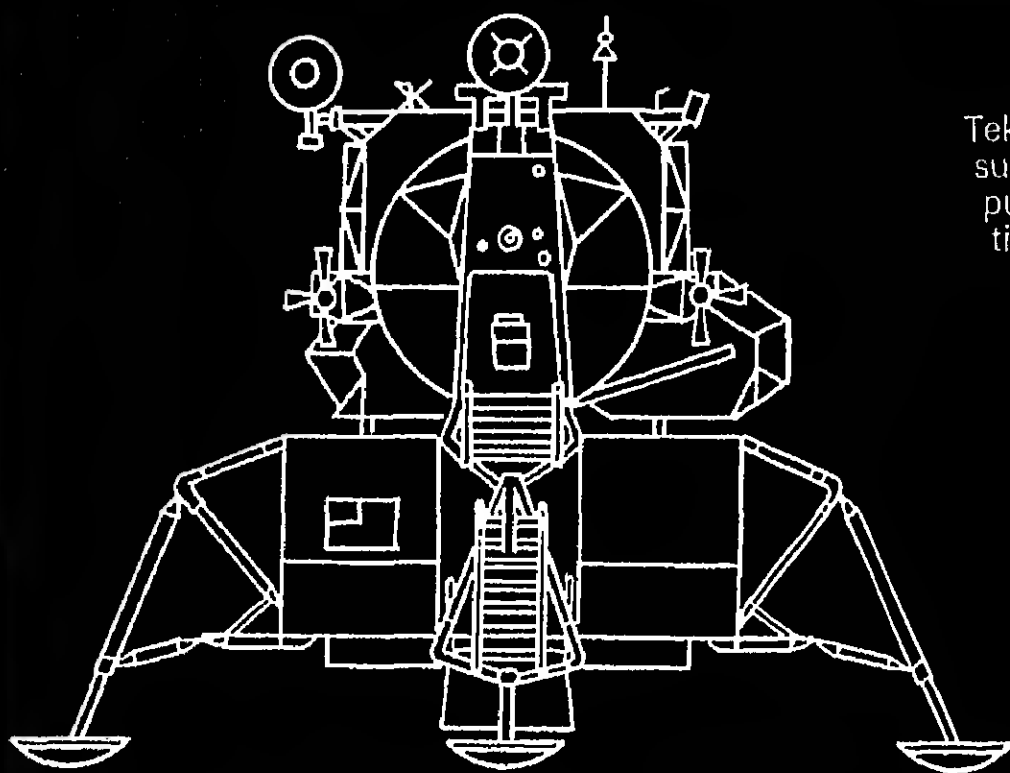
Come along to the Royal Lancaster Hotel, have a drink on us, tell us about yourself; and we'll tell you all about this unique development and a career that will be financially rewarding and has the exciting potential to be expected of a "ground floor" project.

If you require more information before attending or cannot make it on the 27th then please contact IVOR BROOKSTONE or NICK MARSH on 01-637 9611.

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Sales Executives c £17k + CAR



Tektronix are world market leaders in the manufacture and supply of electronic instrumentation, graphics systems and computer peripherals. They have grown to a billion dollar organisation acquiring a reputation for technical excellence and original design concepts.

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You should have a degree level education in a scientific or technical discipline and will either be a seasoned sales professional or be in a sales support role and looking to make your move into a formal sales position.

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Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

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Applications for optical scanning are numerous. DRS is still just scratching the surface. Each new customer will present you with a new project. You will work closely with both customers and other members of a strong DRS team. Before and after a sale. You will contribute to the development of new products.

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Interviews can be arranged locally or in London.

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DRS has in 14 years become a market leader in the supply of OPTICAL SCANNING SYSTEMS.

■ It has built an enviable reputation for the QUALITY of its PRODUCTS & SERVICES.

■ It has doubled its turnover since 1980.

■ It has a 'promote from within' policy providing an exceptional career path.

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On the PERSONAL SIDE you will find:

- Flexible working hours
- Supportive, enthusiastic and highly skilled colleagues
- Scope for initiative
- Regular pay reviews
- High expectations of your input

Electronics Engineers and Real-Time Software Specialists.

The STC Telecommunications Technology Tour

Announcing our Telecommunications Technology Tour, designed to give you first-hand information about STC Telecommunications, our plans for the future and the outstanding careers offered to experienced professional engineers.

You are invited into tomorrow's exciting world of communications.

This is your opportunity to find out more about the important business developments and technological challenges at STC Telecommunications.

As the world moves into a new era of communications we are making increased investment through major growth programmes at our engineering centres in NEW SOUTHGATE • BASILDON • BRIGHTON • GREENWICH • NEWPORT • SELKIRK to equip our organisation for an industry that will dominate the 1990's.

Come along to discuss, quite informally, where you and your experience and qualifications could fit in with our future plans for voice, data and visual communications — which will be more sophisticated, more efficient and faster than anything experienced by our modern society to-date. Our technical people will be on hand to answer your questions about our future products and their applications and our support facilities.

There are opportunities for experienced engineers at various levels of seniority including Principal Engineers and Project and Design Managers. We are particularly interested if you have expertise in one or more of the following disciplines.

- | | |
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If you are determined to build a successful career in TRANSMISSION — INFORMATION TERMINALS — SWITCHING — DEFENCE SYSTEMS — CABLE PRODUCTS, make a note in your diary now to visit our TELECOMMUNICATIONS TECHNOLOGY TOUR when it's in your locality.

If you're unable to get along you can phone Bill Wright at our Engineering Resource Centre now on 01-368 1234 ext 3370 or write to him enclosing your cv. to the address below quoting ref CW/17. As soon as we hear from you, we'll send you a detailed information pack.

The Engineering Resource Centre (Bidg 2) STC FREEPOST, London N11 1BR.

Developing tomorrow's communications technology.

STC Telecommunications

Where you can visit our Telecommunications Technology Tour.

We'll be at the following hotels from 4.30pm-9.00pm on the dates stated.

LONDON The Imperial Hotel, Russell Square, WCI on Wednesday 28th and Thursday 29th September and on Wednesday 5th and Thursday 6th October.

BRISTOL The Unicorn Hotel, Prince Street, Bristol on Wednesday 28th and Thursday 29th September.

MANCHESTER The Post House, Palatine Road, Northenden, Manchester on Wednesday 28th and Thursday 29th September.

NOTTINGHAM The Albany Hotel, St. James's Street, Nottingham on Wednesday 28th and Thursday 29th September.

COVENTRY The Hotel Leefric, Broadgate, Coventry on Wednesday 5th and Thursday 6th October.

EDINBURGH The North British Hotel, Princes Street, Edinburgh on Wednesday 5th and Thursday 6th October.

READING The Post House, 500 Basingstoke Road, Reading on Wednesday 5th and Thursday 6th October.

CRAWLEY The George Hotel, High Street, Crawley on Wednesday 5th and Thursday 6th October.

WELWYN The Clock Motel, Welwyn on Thursday 6th and Friday 7th October.

BRENTWOOD The Post House, Brook Street, Brentwood on Wednesday 12th and Thursday 13th October.

STC

OPERATORS

SYSTEMS & PROGRAMMING

COMPUTER WEEKLY September 22 1983

OPERATIONS SUPERVISOR £9,500
IBM OOS/VSE, VM

Company based in North London/Middlesex borders seeks experienced person, FOUR YEARS' DOS/VSE, VM & CICS with supervisory skills.

SHIFT CONTROLLER £10,500
IBM MVS/JES2

Well-known company situated North of London seeks a professional with approx. FIVE YEARS' supervisory experience and good knowledge of MVS/JES 2.

SHIFT LEADER £9,500
IBM OS/VS1 + Perks

& NETWORK CONTROLLER £9,500
CASE OCX or SIMILAR + Perks

Financial concern based in London requires two people, one of which should have TWO TO THREE YEARS' OS/VS1 experience with supervisory skills whilst the other should have an extensive knowledge of Telecommunications for Worldwide Link-ups.

OPERATOR ££9,000
IBM MVS/JES2

International company in London seek an Operator with TWO TO THREE YEARS' MVS/JES2 experience.

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PROGRAMMERS to £14,000
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- ★ FLEXITIME, PENSION & LIFE ASS. SCHEMES
- ★ NEW DEVELOPMENT PROJECTS

PROG/ANALYSTS ££11,500
IBM COBOL LONDON

This International Company based in Central London seeks to recruit career minded individuals to enhance their young dynamic data processing team. They retain IBM 4341 mainframes running under MVS using COBOL, CICS and DL/1. If you have a minimum of TWO AND A HALF YEARS' IBM COBOL, they in turn can offer TRAINING in CICS and DL/1. TRAINING in ANALYSIS, much USER contact and LARGE Development systems.

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- ★ NON-CONTRIB. PENSION SCHEME & FREE LUNCH

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- ★ INTERNATIONAL TRAVEL

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IBM COBOL MIDDX

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If you want to be part of this company's continuing success story - Phone Now.

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PROGRAMMERS

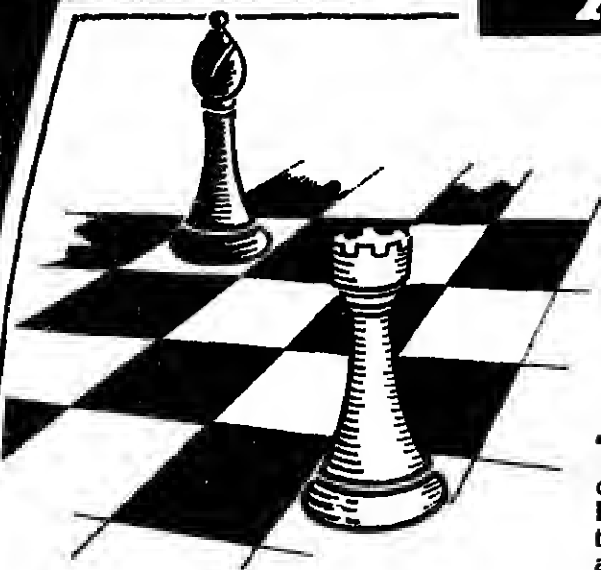
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The applicants should have a minimum of 2 years' programming experience in at least one of the following languages: COBOL, RPG, BASIC. It would be an advantage if this experience were obtained on an HP 3000 system with knowledge of VIEW and IMAGE. The work could be for the parent company or clients, which means that applicants should be flexible in terms of travelling and working away from Dunstable. Applicants should also be generally knowledgeable of commercial practices.

Please write, enclosing a cv, to Mr G. J. H. Shaw, ACCS, Air Call House, 105-111 High Street, Houghton Regis, Dunstable, Beds. Telephone: 0582 64191.

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LOCATION: HOME COUNTIES DT101/2

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DAVID WINEBLOOM
Sales Manager

SHELTON INSTRUMENTS LTD.
74-77 WHITE LION STREET,
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SENIOR PROGRAMMER/ TEAM LEADER £10,000 - £14,000

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IBM ANALYST/PROGRAMMER

CITY Due to expansion, this financial concern has an opening for an IBM Analyst/Programmer. Current configuration comprises an IBM 4341 with DOS VSE and CICS (plus suitable applicants should be conversant with on-line programming and should also possess specification experience. The successful candidate can expect high remuneration and the early prospect of promotion. Ref: M2108

IBM COBOL ANALYST/PROGRAMMERS

ESSEX Due to further completion of their financial systems, this Essex-based manufacturing company has a requirement for IBM Analyst/Programmers. Applicants should possess 18 months' + COBOL programming expertise and preferably some on-line development skills, although the company are willing to train successful candidates in CICS, DL/1 and Analysis. Good career prospects and company benefits. Ref: M2108

IBM COBOL PROGRAMMER

CITY This financial organisation is seeking an IBM COBOL Programmer with 12 months' + experience to work on development with some maintenance. The company retains an IBM 4341 utilising DOS VSE, VSAM and VM/CMS. Excellent opportunity to gain experience of financial applications. Prospects are superb; benefits include MORTGAGE subsidy, low interest loans, i/c pension and ST. Ref: M2108

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CONTRACTS

Position	Location	No. Months
Analyst Programmer VME/IMS/TPMS/COSOL	Central London	6-24
VM/CMS Systems Programmer	Surrey	6+
Cobol Programmer IMS/DB/DC	Central London	6+
Cobol Analyst Programmer IMS/DB/DC	South London	6+
Cobol Programmer IMS/DB	West London	6+
Honeywell Programmers DPSS	West London	3+
Fortran Analyst Programmer Degree IBM	Central London	6
Univac 1100 Cobol Programmer JSP	West Country	6+
Senior Designers VME B IMS TPMS	Herts	6+
Analyst Programmers VME S IMS TPMS Cobol	Herts	6+
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Burroughs Cobol Programmer DMS/CANDE	Surrey	6+
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Burroughs Cobol Programmers	Various	6+
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JAS87/1

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LOCATION: BERKSHIRE JAS87/4

Name _____
Address _____
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your appointments register

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Systems Programming experience Middlesex/London

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IBM SYSTEM 34/38 MAAPICS to £13K
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Salary will be negotiable between £9,000-£10,000 p.a. depending on qualifications and experience.

If you enjoy a challenge and feel you fit our clients' requirements, write with full career and personal details to Confidential Reply Service, Ref AMS 8331, Austin Knight Advertising Limited, London W1A 1DS.

Applications will be forwarded to the client concerned therefore companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor.

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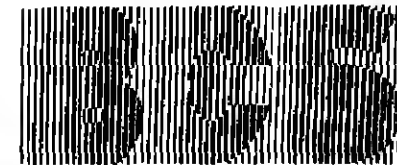
Our client is a major international organisation operating in the Financial Information Services sector of the market on a worldwide basis, and is currently setting up a new centralised European computer centre. Decisions have been taken to develop a wide range of financial services for UK and European customers which involves the design and implementation of large DATABASE systems using IDMS and CICS as a TP monitor.

Immediate requirements are to recruit a number of key D.P. Professionals which will provide them with the scope and opportunity to make a significant contribution to the development of new major batch and online/realtime projects. Excellent career progression will be afforded to those D.P. Professionals who can demonstrate their skills and contribute towards these ambitious development plans.

PROJECT LEADERS c.£15,000+
Applicants must be able to demonstrate a sound technical track record of design and implementation of large-scale batch and online database applications, with experience of IDMS or other database experience. A working knowledge of command level CICS is essential for one of the positions preferably gained in an OS/MVS/JES2 database environment. A knowledge of BAL would be an advantage, but not essential. Project Leaders are responsible for functioning systems and associated documentation.

DATABASE ANALYST c.£14,000+
This position will suit someone with a sound knowledge of IDMS (IBM or ICL), together with a working knowledge of COBOL. The successful applicant, who will be responsible to the Database Administrator, must be able to communicate effectively at Project Manager level, and make database design decisions. Additional functions would eventually include responsibilities for staff at junior level.

If you are attracted to the challenge of these ambitious development plans, which provide the scope and opportunity for excellent career progression and generous benefits package, call IAN C. BUICK, MBSC, Managing Director.



BUICK COMPUTER SERVICES

RECRUITMENT DIVISION
72 Rochester Row
Victoria - London SW1P 1JU

Tel: 01-834 0061 (24-hours)
Or call evenings and weekends
01-942 1178

SYSTEMS SOFTWARE SUPPORT UK/ABROAD £20,000+
This International Software House needs highly motivated O.P. professionals for exciting new customer support projects at home and abroad. Applicants must have 3 years' systems programming experience with a sound technical background in MVS/JES2, CICS and other associated IBM software. The company is offering an excellent remuneration package together with outstanding career progression.

IBM PROGRAMMERS to PROJECT LEADERS HERTS/MIDDX to £19,000
Two major commercial companies require all levels of staff to Project Leaders to meet their expanding development commitments. Sound technical IBM mainframe knowledge, plus a 3-year plan and control work for small groups of professionals essential. Applicants must have a minimum of 2-4 years COBOL and/or BAL with a preferred working knowledge of IMS or IDMS in an OS/MVS environment.

PROJECT MANAGER LONDON £18,000+ Profit Share
A leading Software House needs someone with a sound knowledge of telecommunications and/or defence systems, preferably gained within a Software House environment. The successful candidate will take control of the design and implementation of large telecommunications projects. BUPA, Life Assurance and Profit Share are just some of the attractive benefits offered.

ANALYST/PROGRAMMERS to £18,000
SENIOR PROGRAMMERS/SENIOR ANALYSTS
Major Software House based in London are seeking a number of O.P. professionals to cope with their expanding needs in their Banking, Insurance & Property Investment Divisions. Applicants should possess relevant applications experience together with a working knowledge of IBM COBOL or RPG2. Experience of CICS/OL1 would be an advantage to those with a mainframe background. Rapid advancement opportunities exist in a continuing growth market.

PROJECT MANAGER £16,000+ Car + Bonus
Well-known Software House, situated in Middlesex, need a Project Manager with sound commercial systems and project management experience to manage turnkey systems, using MVS/JES2, CICS, etc. The applicant will ideally have had exposure to a software house environment.

PROGRAMMERS & ANALYSTS to £16,000+ benefits
A large number of our clients situated in London, Home/Southern Counties need Programmers & Analysts with PL1 or COBOL or BAL experience to develop real-time commercial systems, including Banking & Insurance, using CICS & BAL. Knowledge of CICS or SHADOW an advantage. Benefits include BONUS schemes, MORTGAGE & Insurance facilities.

PROJECT LEADERS MIDDX c.£15,000+ Bonus
Major financial organisation requires Project Leaders with sound experience in the design and implementation of large scale database systems, with a working knowledge of either command level CICS or IDMS, preferably in a MVS environment. A knowledge of BAL would be useful, but not essential. Excellent career prospects and benefits apply to these key positions.

SYSTEMS ANALYST LONDON £15,000+
This International company requires an Analyst with up to 4 years experience in the securities industry, in Banking or Insurance Broking, etc. An IBM background would be preferred. Very good prospects and benefits apply to this position.



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72 Rochester Row
Victoria - London SW1P 1JU

Tel: 01-834 0061 (24-hours)
Or call evenings and weekends
Ref. A: 01-318 2700
Ref. B: 01-794 5937
Ref. C: 01-942 1178
Ref. D: 01-310 0482

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.

SYSTEMS ANALYST LONDON to £13,000
Large financial organisation requires someone with 3 years' Analyst's experience, preferably gained in an IBM MVS/JES2 environment. The successful applicant must have taken at least 1 project from feasibility through to implementation, and will work on a variety of new commercial applications. Excellent fringe benefits apply.

PROGRAMMERS, ANALYST/PROGRAMMERS LONDON to £13,000+ Bonus
A number of our clients require people with a minimum of 2 years' COBOL to help develop a variety of real-time applications. Applicants with backgrounds of general commercial, insurance and financial expertise would be considered for these numerous ICL positions. A knowledge of IDMS, TFS or TPRS would be an advantage though training will be given. MORTGAGE, LIFE ASSURANCE, SEASON-TICKET LOANS, BUPA and BONUSES are just some of the fringe benefits offered.

COBOL/CICS PROGRAMMERS LONDON to £13,000
Large Software/Bureau organisation needs 2 IBM COBOL Programmers to meet their expanding client requirements. Knowledge of CICS/OL1 is preferred, but training will be considered. The company offers an excellent career path through to systems/consultancy level.

SYSTEMS ANALYST HERTS £12,500+ Relocation
A minimum of 2 years' VME/8 experience is required by this international retail organisation. The successful applicant will take responsibility for the development and implementation of new commercial applications. A good understanding of installation standards and operating systems software would be an advantage.

SYSTEMS ANALYST MIDDX £12,000+ Bonus
A O.P. professional with a proven record of systems implementation is required by this expanding manufacturing organisation. The successful applicant will be assigned to the development of exciting new commercial projects, on an IBM 4341 under TME. XMAS BONUS and PETROL ALLOWANCE are just two of the many attractive benefits offered.

SYSTEMS ANALYST LONDON £12,000+ Mortgage
Leading financial organisation needs someone with a proven record of systems implementation using X-BATS 'MONITOR' software. The successful candidate will be assigned to a highly professional team, currently developing major financial systems. MORTGAGE and BUPA are just two of the many benefits offered.

IBM PROGRAMMERS MIDDX/LONDON £12,000+ Bonus
This International organisation needs Programmers with a minimum of 2 years' IBM COBOL and/or BAL, to develop large on-line financial applications in an MVS/IMS environment. Knowledge of CICS useful, but training will be given. Excellent career prospects and benefits apply.

OEC PROGRAMMERS LONDON c.£12,000
Our client, a leading Software Organisation, needs OEC Programmers to perform Customer Support roles within the UK and abroad. Applications include banking and other financial applications packages together with communications software and hardware support. Applicants must have COBOL, BASIC 1+1, or ALGOL, together with good communication skills, and be prepared for occasional worldwide travel. Experience of DEC VMS, REX 11 or RSTS/E would be an advantage. Excellent training facilities and opportunities for advancement in a fast-growing market.

ANALYST/PROGRAMMERS ESSEX c.£12,000
Our clients, a leading manufacturing organisation, require Analyst/Programmers with at least 2 years' IBM COBOL expertise, together with CICS/OL1, to meet their demand for major new on-line development work. Excellent salary, benefits and career advancement guaranteed.

PROGRAMMERS/ANALYST MIDDX to £12,000
Large Software Organisation needs someone with 2 years' RPG 2 or RPG 3, together with some analytical experience. The successful applicant will gain considerable experience in handling a wide variety of applications, training facilities exist, with prospects for rapid advancement in a fast growth market.

ANALYST/PROGRAMMERS MIDDX to £12,000
This large engineering organisation is seeking 2 PL1 and/or COBOL Programmers to join their expanding team to work in a variety of financial applications. Experience in a MVS environment and knowledge of CICS or VTAM would be a definite advantage. Structured career path guaranteed.

PROGRAMMERS, ANALYST PROGRAMMERS (TRAIN IN RPG3) £11,500+ Relocation
A number of our clients situated in London, Home/Southern Counties require people with a minimum of 12 months' RPG2 experience to train on IBM SYSTEM 36/RPG 3. Applicants with backgrounds of general commercial and manufacturing expertise would be considered for these numerous positions. LIFE ASSURANCE, BUPA and RELOCATION expenses are just some of the many fringe benefits offered.

PROGRAMMERS/ANALYST LONDON £11,500+ Bonus
Large financial company organisation needs someone with 2 years' COBOL experience to work with their development teams in an MVS/JES2 environment. A knowledge of PL1 would be useful. Benefits include BONUS scheme, FREE LUNCHES, STL, FREE LIFE ASSURANCE, etc.

PASCAL PROGRAMMER LONDON to £11,500
A well-known telecommunications organisation requires someone with 2 years' PASCAL experience preferably gained on DEC/VAX equipment. The successful candidate will be involved in the development of new and enhancement of existing GRAPHICS systems. Excellent career prospects.

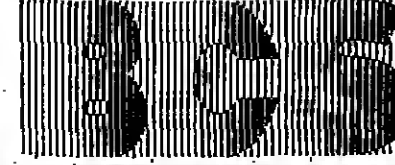
PROGRAMMER MIDDX £11,000+ Bonus
A leading manufacturing organisation seeks someone with at least 3 years' IBM COBOL experience together with a working knowledge of VSAM to work on major new on-line development systems. Excellent benefits are offered which includes a substantial BONUS.

IBM COBOL PROGRAMMERS MIDLANDS £11,000+ Relocation
A leading Software House, currently developing new online systems, needs O.P. professionals with 2 years' COBOL for their IBM ODS/VS2 installation. A knowledge of CICS/OL1 would be an advantage. The company is offering a stimulating working environment, together with a full remuneration package including RELOCATION.

FORTRAN SPECIALISTS LONDON/HOME COUNTIES c.£11,000
Programmers are required to join existing development teams to work on a wide variety of applications including scientific, research, engineering and commercial projects using main and mainframes, including DEC, HP, DG, etc. Knowledge of UNIX or STATUS would be useful for a site in Middlesex.

COBOL PROGRAMMERS (ANY MAINFRAME) SURREY c.£11,000
Leading manufacturing organisation requires D.P. professionals with a minimum of 2 years' COBOL experience for their IBM 4341 ODS/VS2/CICS installation. Successful applicants will be assigned to the development of major on-line commercial applications. A structured career path and excellent benefits package are offered.

FORTRAN PROGRAMMER HANTS £10,500+ Relocation
A leading company in the field of scientific research needs someone with a minimum of 2 years' FORTRAN, preferably gained on HEWLETT PACKARD equipment. The successful applicant will be required to deal with planning and researching of major development project. A structured career path together with many fringe benefits apply.



BUICK COMPUTER SERVICES

RECRUITMENT DIVISION
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The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.

NCR COBOL PROGRAMMERS SURREY c.£10,500
Expanding manufacturing organisation requires Programmers with a minimum of 2 years' COBOL experience, preferably gained within an NCR/VS2 environment. Successful applicants will be assigned to a major development project using online and DATABASE techniques. Many fringe benefits apply.

PROGRAMMERS NORTH SURREY £10,000+
A leading financial organisation needs IBM COBOL Programmers for major new on-line development work. A working knowledge of CICS is also essential, as is the ability to liaise with Users. Very good prospects for the right person together with good benefits.

ICL PROGRAMMERS MIDDX £9,500+
A minimum of 18 months' COBOL experience is required by this leading organisation. Unless experience is preferred, as is the ability to liaise with Users. A well structured career path in ANALYSIS is guaranteed.

WANG PROGRAMMER LONDON to £9,500
A leading name in the field of communications needs a self-motivated person with a minimum of 12 months' RPG2 experience gained on WANG equipment. The successful candidate will assist with the development of new commercial applications, where every opportunity to progress into analysis will be given. A structured career path together with excellent working conditions are a bonus.

JUNIOR IBM PROGRAMMER SUSSEX c.£8,000+ Mortgage
This leading finance company needs someone with 12 months' rudimentary COBOL experience but their expanding MIS department. The successful candidate will join an existing project team currently developing new financial applications on an IBM 4341, where training in CICS/OL1 will be given. PREFERENTIAL LOANS and MORTGAGE are just two of the many fringe benefits.

OPERATIONS

OPERATIONS MANAGER MIDDX to £20,000+ car
Our client, a large financial organisation, needs an Operations Manager to take responsibility for the setting up and running of a new IBM 3083 site, running under MVS/JES2, CICS and IDMS. The successful candidate will have extensive O.P. experience with proven technical and managerial experience. Excellent career prospects and benefits apply.

PRODUCTION CONTROL MANAGER MIDDX to £20,000+ car
Our client, a large financial organisation needs a Production Control Manager to take responsibility for all aspects of Operations Production functions for a new IBM 3083 site, running under MVS/JES2, TSO/SPF, CICS and IDMS. The successful candidate will have proven management and technical skills, and be capable of handling the diverse operational requirements of this large new site. Excellent career prospects and benefits apply.

SYSTEMS PROGRAMMER (EX-IBM OPERATIONS) LONDON to £13,000
Our client, a large financial organisation is seeking an Operations Analyst or Operations Supervisor wishing to move into the realm of systems programming. The successful applicant must have sound IBM ODS/VS2 JCL experience, together with experience of installing packages. A limited knowledge of PL1 or BAL would obviously be a distinct advantage, together with expertise in CICS.

MVS OPERATORS SOUTH COAST c.£9,000
A leading international organisation requires people with a minimum of 18 months' MVS/JES2 experience for their expanding communications department. Training in CICS/OL1 given. Numerous attractive benefits include FREE LIFE ASSURANCE.

JUNIOR OPERATIONS ANALYST SURREY £9,000+
International manufacturing organisation needs someone with 2 years' MVS/JES2 and JCL experience, looking to progress into management. A structured career path together with excellent benefits guaranteed.

HP3000 SHIFT LEADERS BERKS/KENT to £9,000
Self-motivated persons with a minimum of 2 years' HP3000 experience required by two major manufacturing organisations. Previous supervisory experience is preferred. Excellent benefits and career prospects apply.

MVS OPERATOR LONDON £8,600+
Large insurance company needs an Operator with 2 years' MVS/JES2 experience. Excellent prospects and fringe benefits apply.

DOS OPERATORS SURREY/LONDON/BERKS to £8,300+ Mortgage
Two financial organisations and a Manufacturing Company need Operators with 1-2 years' DOS experience with ODS/VS2 to work in a 2/3-SHIFT environment. Knowledge of CICS or VM useful. Excellent prospects and company benefits.

IBM CO-ORDINATOR SURREY c.£8,000
This day-only position would suit an experienced Operator with DOS/VS2, CICS experience to assume responsibilities of problem solving, trouble-shooting, liaising with Users, etc. Excellent working conditions apply.

IBM OPERATORS LONDON/ESSEX £6,000-£8,000
We have been retained by several organisations to recruit Operations Personnel with 12 months' + experience of DOS/VS2 or OS/VS6. Varied benefits include MORTGAGE facilities, Free Life Assurance, BUPA, etc.

DATA CONTROL CLERKS (ANY MAINFRAME) LONDON c.£7,000
A leading financial organisation require experienced Data Controllers for their expanding division. Excellent working conditions and benefits apply, including MORTGAGE facilities.

TAPE LIBRARIAN SURREY c.£6,500
Our client requires someone to assume the role of being responsible for the maintenance of the Tape Library together with the usual job functions. Excellent working conditions and benefit apply.

GSO OPERATORS LONDON £6,500+
This well-known company needs 2 Operators to work on their IBM System 34 and System 38 equipment. The ability to communicate with Users essential. Excellent career path and benefits apply.

GSO OPERATOR (OAYS ONLY) SURREY £6,500
2 years' System 34 experience is required by this expanding Commercial Organisation. Excellent prospects and fringe benefits.

Tel: 01-834 0061 (24-hours)
Or call evenings and weekends
Ref. A: 01-318 2700
Ref. B: 01-794 5937
Ref. C: 01-942 1178
Ref. D: 01-310 0482

JOBS IN THE PUBLIC SECTOR

The advantages of going public

John Riley looks at a sector of computing that offers staff a chance to grow with a wide range of machines

THE public sector encompasses a wide range of activities - local government, the Civil Service, universities, and hospitals and health services as well as services including the police, fire brigades, and so on. True, they seldom provide the salaries and physical perks of working in a commercial environment, but there are varied and unique advantages that the public sector has been slow to push to the forefront of its recruiting campaigns.

There are certainly long-term opportunities. Computerisation is taking place in the public sector at an increasing rate, particularly within local government and the Civil Service. An indication of the amount of investment is provided from local authorities which are estimated to spend about £200 million on computing each year. The Civil Service is mounting a massive 10-year computerisation programme for the Department of Health and Social Security, which will provide many opportunities - and that programme is about three years behind the project to computerise the Inland Revenue.

All public sector employees offer opportunities to grow with a wide range of machines, with lateral movement to other systems, relatively relaxed working conditions, and less time-pressure to develop systems. Employees from across the public sector speak of the satisfaction of doing a worthwhile job for the community rather than be-

ing involved in the more stressful rough and tumble of the commercial world.

A closer look at one of the largest public sector employers, the Greater London Council, illustrates the opportunities within DP departments throughout the public sector.

Ken Dalby, head of GLC Computing Services, which has about 260 DP staff, spelled out the benefits of working within local government, which are also to be found throughout the public sector.

"With local government there is a tremendous range of applications areas", he said. "Other organisations such as banks or construction companies can't offer the same breadth of applications."

The applications range from government through to commercial and financial functions, offering employees a wide variety of experience in system development.

Not only is there a wide range of applications, but a wide range of equipment of different sizes and makes in most public sector installations; and there can be opportunities to develop in different DP environments under the same employer.

"In the GLC we pride ourselves on our wide array of equipment", said Dalby. "The GLC has IBM 3081 and 3033 mainframes, Prime, ABB and Digital Equipment microcomputers, and about 300 microcomputers covering a wide

range of manufacturers, and a network of 600 terminals.

"There are opportunities to move from one DP environment to another without changing employer", continues Dalby, "so with us there is the chance to move from the central service to working in a smaller department computer group co-ordinating computer activities."

"Also, if an employee ever gets fed up with computing, there are plenty of opportunities for moving across into general administration, so we are able to offer broader career prospects and our staff are

There are opportunities to move from one DP department to another without changing employer. And if an employee ever gets fed up with computing, there are plenty of opportunities of moving across into general administration

not restricted within the one profession", observed Dalby.

Dalby and other local government computer managers agree that there are perks available in the commercial world that local government does not offer, such as company cars, free lunches, profit sharing schemes, etc, but point out that holidays are more generous - typically about five weeks a year and flexible working.

"In any case, profit sharing only works as long as the company is



Police forces throughout the country increasingly are turning to computers to speed their work.

designed for use on ICL 2900 Series computers running the VME operating system.

Richard Goodridge, Dorchester County Council's computer manager, says that the package has sold widely to many organisations including Rural and the Ministry of Defence.

Computer managers of local government installations have their own user groups, and meet regularly to discuss developments in a co-operative atmosphere, and the benefits are passed down the line.

Dalby is chairman of the local government IBM user group which meets every two months, providing a "natural source of interchange". ICL users have similar arrangements.

Are employees affected when local authorities move from central

processors to distributed processing? Dalby says this is a widespread phenomenon. "Distributed processing is only fully appreciated when the organisation is fully distributed. Commercial organisations with branch offices spread over the country have a need to process data locally or transfer to the centre where corporate interest."

The public sector consists of areas of data processing which are good value round the clock, 24 hours experience, and nearly all areas offer much training and continual development.

Many public organisations now people from government service courses such as the civil service, and many of these have had no previous DP experience.

PUBLIC SECTOR APPOINTMENTS

City of Salford

DATA PROCESSING
COMPUTING CONTROL ASSISTANT
(Scale 6/8/02) £8,154-10,539
COMPUTER CENTRE - SWINTON
Post Ref: 9013/CW
The Computing Control Section assists the Computer Operations Manager by the design and specification of computer operations procedures for existing, new and revised applications running on the City Council's computers of which the principal machine is, at present, an ICL 2960 running under VME/F. Major development of new applications, based on ICL 2960 and TMS, is under way. Existing work embraces ICL 1900 batch and 2900 batch, TP & MAC. The responsibilities include data security, scheduling work, recording and monitoring machine use, media selection and the provision of an effective computing service to City Council departments from an efficient use of computers, operating software and computer-based equipment.
The successful applicant will possess practical experience and knowledge of the operational aspects of the provision of a computing service.
Starting salary will depend on qualifications and experience.
Application forms may be obtained from the Personnel Manager, Salford Civic Centre, Swinton, Manchester M27 2RN. Telephone 061-763 3168. Please quote the appropriate post reference in all communications. Closing date for applications: October 7, 1983.

FARNBOROUGH COLLEGE OF TECHNOLOGY
LECTURER GRADE 1 IN COMPUTING
To teach in a range of courses up to HND level.
TEMPORARY LECTURER GRADE 1 IN COMPUTING/ DATA PROCESSING
In a similar range of courses. Appointment to 31/8/84 in first instance.
Applicants should have good industrial/commercial experience and acceptable qualification. Salary range £5,848 to £7,335 p.a., starting point depending on experience and qualifications.
Further particulars from the staffing officer, Farnborough College of Technology, Boundary Road, Farnborough, Hants GU14 6BB (S.A.E. please).
Closing date: 7th October, 1983

UNIVERSITY OF EDINBURGH
Program Library Unit
COMPUTING OFFICER FOR DATABASE WORK
The Program Library Unit has a vacancy for a Computing Officer to work in the area of Project Support and Database Systems.
The Program Library Unit is a department of the University of Edinburgh responsible for providing a range of computing applications related services to users in the University and in a number of Government funded research institutes around Edinburgh and elsewhere.
The work would be in two main areas: (i) support in the development of new projects and the maintenance of existing projects; (ii) the development and maintenance of ENUF (Edinburgh User Friendly database management system) software on SAS and other systems.
Applicants are invited from experienced graduates in computing or in a course with some computing content. The appointment will be on the scale: Computing Officer £7,180-£11,615 (with superannuation). The appointment will be for a period of 3 years in its first instance with a two-year review first occurring after one year to consider a two-year extension.
Further particulars are available from the Secretary to the University, Old College, South Bridge, Edinburgh EH8 8JH, who will also provide an application form. The closing date for applications is 21st September 1983. Please quote reference number 7025.

CITY OF BIRMINGHAM
POLYTECHNIC
Computer Centre
SENIOR LECTURER IN SYSTEMS ANALYSIS
The main task, initially, is that of developing a Management Information System for the Polytechnic's administration. Thereafter, conventional lecturing duties will follow mainly on Business Computing courses.
SALARY SCALE:
SENIOR LECTURER
£10,883-£12,582 (bar)
£13,443 p.a.
Further details and application forms (to be returned by October 6, 1983) from: The Personnel Officer, City of Birmingham Polytechnic, F Block, Perry Barr, Birmingham B44 2BU. Telephone 021-355 6183, Ext. 215.

Lancashire County Council
An Equal Opportunities employer
COUNTY TREASURER'S DEPARTMENT
SENIOR SYSTEMS PROGRAMMER (MICRO)
Salary within the Career range SO1/PO1 (1-7) - £9,980-£11,703

This is a new post and is one of three senior systems programmer posts within the Systems Support Section, which is headed by a Principal Systems Programmer. There are also separate Programming and System Analyst Sections. The duties will involve working closely with the Principal Systems Programmer and other senior members of staff in the identification and exploitation of modern technology to the benefit of the County Council. The Authority has a wide range of equipment including terminals, word processors etc and a strategy to link this equipment to be developed.
The computer installation, which will shortly be enhanced, presently consists of an ICL 2775 with 8 mb core, considerable fixed and exchangeable disc storage and communications facilities providing an RJE, MAC and TP service operating under VME(B). This machine also provides extensive facilities for nine District Councils and a Development Corporation.
The location is in Preston which has excellent road and rail links as well as being only one hour's drive from the Lake District and other areas of scenic and leisure attractions. There is a flexible scheme for the reimbursement of relocation expenses. Applicants should have more than two years of practical experience in software support or modern technology micro equipment and be able to communicate with technical and user staff at all levels. Application forms are available from The County Treasurer, PO Box 100, County Hall, Preston, or by telephoning Anne Booth on Preston 284776.
Closing date: Friday, 30th September, 1983.

Bristol Polytechnic
COMPUTER CENTRE
OPERATIONS MANAGER
Ref. No. A/111
SALARY SCALE: £9,060-£9,850 per annum
Applications are invited for this vacant post from users familiar with proven relevant experience.
A major enhancement programme is underway which will involve the replacement of an ICL 2960 and an ICL 2900 by a system based on a Prime 550, 2 Prime 550 and an ICL 2900. This is a major project and the successful candidate will be responsible for the operations function and will be expected to work closely with user departments.
Previous supervisory experience is necessary and knowledge of PRIME/CL machines would be advantageous.
Informal enquiries to Mr D. Huse, Computer Manager on 085251, Ext 333.
For further details and an application form, to be returned by Friday, 23rd September 1983, please contact the Personnel Officer, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol BS16 1QY. Telephone 085251, Ext 218 or 217.
Please quote Reference Number A/111 in all communications.

SALES BIT

Quality of Management - 66

Take care with those discounts

I RECALL an occasion when one of my salesmen told me about a couple of situations that he thought were substantial sales victories. One was a sale signed sealed and delivered. The other a promise of increased business from an existing but small-volume user. Then came the bad news.

The salesman told me that for the new client he had thought to give a discount, even though he was not authorised to do so. His excuse was that, as I was on holiday at the time, he had not been possible to gain my approval.

He was a little upset when I ruined the sweet smell of victory by explaining to him why he had probably done the wrong thing. I was upset too, when he told me that the client concerned was the only one on our blacklist of companies not to do business with at any price.

Having swallowed the bitter reality of that situation, I thought it might be a good idea to enquire about the other one just in case. He hadn't by any chance given a discount to the other client had he? No prizes for guessing. He had also given the other client a discount. In exchange for what? In exchange for nothing.

In this case the client had suggested that the reason we were not getting his mainline business was because our prices were too high. Naturally the salesman was interested to know if a lower price would mean more business. When the client told him "yes", probably, he agreed a discounted price which would apply should he utilise the particular aspect of our service that was under discussion. In other words he committed the company to an unauthorised discount for a non-existent order.

Sadly, the salesman couldn't see that there was a problem. He admitted that he had overstepped his authority, but he believed he had been justified by the situation. So, I took him through as many of the ramifications as I could. I think both of us were surprised by the number of negative aspects involved.

When a company talks its salesforce that it does not give special discounts, or declares that any discount must be approved by senior management, such instruction is not a mindless edict but a discipline to ensure that salesmen consider all the ramifications of giving preferential terms. Let's look at some of them:

■ Once the client has been given a special discount a precedent has been set. "This company gives discounts." Therefore, the client will always press for price reductions on future transactions, although it may be that the scope for discount existed only on that particular occasion or on that particular product. Consequently, it is essential to make the client totally aware of the limitations and implications of any such arrangement.

■ The market grapevine is usually an efficient communications device, and whatever steps are taken to ensure secrecy you can be sure the word will get around eventually. So, when you show special favour to a particular client or prospect you can be reasonably sure that some of your established clientele will eventually be wanting to know why they are not enjoying the same terms.

■ It is very easy to get into conversation with the prospective client about agreeing discounts without getting anything in return, so that even small transactions in the future are subject to discounts that were intended for the much larger quantities anticipated at the time. In some circumstances the client will attempt to gain a commitment from the salesman to allow discounts, merely to use it as a stick with which to beat his present supplier or other competitors.

The only circumstances in which the salesman should commit his company to discounts - ie to discounts that have already been approved by his management - is when the client agrees to give something in return. What the client should give in return is commitment in action, and that action should be positive agreement to accept the proposition being offered.

■ Unless the supplier operates a strict national accounts system of sales coverage - ie one salesman has total responsibility for all outlets of a given account - then it is possible that a company will be called upon by more than one of the supplier's salespeople. Thus, any discussion about the possibility of special discounts should take place only at head office level. It is not uncommon for one salesman to be talking special deals at branch level, while at the same time another salesman is tying up a national deal with head office based on standard prices.

■ Many salesmen seem to think that going back to their masters for authority is a slight upon their manhood. Nothing could be further from the truth. Suggesting that a special deal is a vague prospect that will need a lot of selling back at the ranch but could conceivably be achieved through the endeavours of the salesman gives much greater credibility to the value of the proposition.

■ One of the oldest tricks in the buyer's book is the mythical competitor routine. Even if there is no other competitor the buyer may talk about the possibility of better deals that might be had from elsewhere. In such circumstances it is easy for the salesman to be tempted into giving a special discount to clinch the deal. Don't swallow that one. Be firm, it's the only way.

■ There are many psychological forces at work in the selling process, particularly in product and company credibility. Discounts can have a very negative effect on this. Giving a special deal could imply that the supplier is badly in need of the business or that the product or service is in some way inferior to competitive offerings.

■ An obvious but often overlooked result of giving a special discount is that the company's image is reduced, while the costs of manufacture and service are not. In other words it becomes less profitable than business as the full price that could have been utilising the same resources. Salespeople are less money motivated than is generally thought. It is only when they receive their pay-check that many realise that their own profitability is reduced as well as the company's.

■ Above all, the salesman has to consider his own credibility. What happens if he agrees a special deal and his company doesn't accept it? Well, apart from anything else, he is a complete idiot. What kind of salesman is he, anyway, the buyer is likely to ask - disorganised, uninformed, over-reaching his authority? Perhaps not the kind of person to whom he would want to entrust his business requirements.

Alan Williams

PUZZLE ANSWER

THE four amounts are: £1.20, £1.25, £1.80 and £2.50.

WEST SOMERSET DISTRICT COUNCIL

APPOINTMENT OF COMPUTER OPERATOR

SCALE 3/4 (£5,840-£7,005)
Applications are invited from suitably qualified persons for the above position in the Treasurer's Department at Minehead. Applicants should have extensive knowledge of ICL operating systems and utilise preferably TME and CIL and be able to maintain reciprocal cover with Data Prep Supervisor using COBOL.
The commencing salary will be determined according to the skills and experience of the successful applicant. Five-day week. 20 working days' annual leave. Post superannuation. Assistance with housing accommodation in approved cases.
Application forms may be obtained from the Treasurer at the Council Offices, 37 Statham Road, Minehead, to whom all applications should be submitted by October 6, 1983.

H. CLOBE
Chief Executive Officer and Clerk
Council Offices, 28 Fore Street,
Wilton, Taunton TA4 4DA,
Somerset
(0874)

SOUTH GLAMORGAN COUNTY COUNCIL

COMPUTER RESOURCES ASSISTANT (ADMINISTRATIVE SYSTEMS)

Scale 4/5 £5,284-£7,398 p.a.
REF AG. Required by the South Glamorgan Institute of Higher Education in the Management and Resources Section which deals with all administrative computing applications in the Institute. Preferably candidates should be competent COBOL programmers with systems analysis skills or those wishing to move into analysis. The successful applicant must be capable of working with the minimum of supervision and have the ability to liaise with staff at all levels. The post offers a challenging and stimulating environment developing and maintaining management information systems on a PRIME 550. A knowledge of further Education administration would be an advantage. The person appointed will operate mainly from the Cyncoed Campus, Cardiff but will have sufficient involvement with all four centres and the Computer Unit at Llandelli, Cardiff.
Requests for Job Description and application form, accompanied by a stamped addressed envelope, to the Personnel and Management Services Officer, Four & County Headquarters, Newport Road, Cardiff. CLOSING DATE 28th SEPTEMBER, 1983. Please quote job reference.

(0499)

UNIVERSITY OF SALFORD

Department of Civil Engineering

SCIENTIFIC OFFICER
Applications are invited from suitably qualified persons with experience in micro-computer hardware and software.
The successful applicant will be required to:
(a) Assist in the linking of laboratory experiments to computers including development of the necessary hardware and software;
(b) Collaborate with academic staff in the development of software for both undergraduate teaching and research applications.
Salary within the range £7,150-£11,615 p.a. depending on age, experience and qualifications. USS benefits. The post is available immediately.
Application forms and further particulars from the Registrar, University of Salford, Salford M6 6PU (tel: 061-736 5843 ext. 215) to whom completed applications should be returned not later than 17 October 1983, quoting reference C/224/CW.

(0499)

Computer Staff

CHIEF ANALYSTS

SYSTEMS ANALYSTS

ANALYST PROGRAMMERS

Location: Scotland Salaries: c £10,000

The Scottish Transport Group is responsible, through its subsidiaries, to the Secretary of State for Scotland for a major part of Scotland's passenger transport by rail road and sea. The Group's major subsidiaries are the Scottish Bus Group (which comprises seven major bus companies) and Caledonian MacBrayne Limited.

As a Group we are now in the process of de-centralising our computer facilities to operating Companies; this will lead to exciting and innovative opportunities for qualified and enthusiastic staff at various levels of responsibility to oversee the transition and later be responsible for maintaining and developing individual Company's Data Processing requirements.

Locations for successful applicants will be throughout Scotland in Edinburgh, Kilmarnock, Falkirk, Motherwell, Kirkcaldy, Aberdeen, Inverness and Glasgow. It would assist if applicants indicated their preferred location.

For the right applicants with the essential enthusiasm and experience we shall offer excellent salaries, benefits and prospects usually associated with a large organisation (over 10,000 employees), together with relocation expenses where necessary.

Applications in strict confidence should be submitted giving details of experience, salary, etc to:

A Douglas Esq
Manpower Executive
Scottish Transport Group
Carron House 114/116 George Street
GLASGOW
(0499)

university college of swansea

Department of Electrical and Electronic Engineering

Lecturer in the Department of Electrical and Electronic Engineering

Applicants should preferably have research interests in Computer aided Design of devices, circuits or systems.
The appointment, which will be for a period of 3 years, will be on the scale £7,150-£11,615 per annum plus USS/USPS benefits.
Further particulars and application forms (2 copies) may be obtained from the Personnel Office, University College of Swansea, Singleton Park, Swansea SA2 8PP, to which office they should be returned by Friday, October 7, 1983.

(0499)

BOX NUMBERS

Box numbers should be addressed to:

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